CIO

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**Paul Mason, Vice President,
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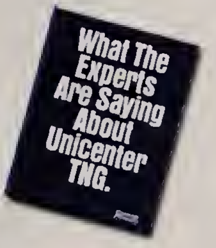

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BUSINESS ALLIANCES Sometimes it makes good business sense to buddy up with your rivals.

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InBox

LETTER FROM THE EDITOR, READER FEEDBACK AND HOW TO REACH US

It's the week before Christmas as I write this. Last night at our company party, we were talking about what our kids want for Christmas. One of my tablemates suggested that kids are lightweights in the "I want" department when compared with businesspeople and technology. "We all think, 'If I just had that database, I'd be able to do exactly what I want,'" he said. "Then we get the database, work with it for a few weeks, get disappointed and toss it. We move on to the next shiny new piece of technology."

PHOTO BY WEBB CHAPPELL

Let's face it: Our anticipation about what technology will do for us is rarely met. It takes a deep-rooted knowledge of business goals and a clear understanding of how people really work (not to mention perseverance, diplomacy and a fair dose of psychology) to overcome the disconnect between expectations and reality and to deliver a system that will have a positive impact.

This combination of understanding and expertise is what makes the winners of the Enterprise Value Awards so extraordinary. "The thing that distinguishes these awards is their value focus," says Richard R. Roscitt, president and CEO of AT&T Solutions, sponsor of the Enterprise Value Awards. "It's not about hot technology or showcasing the latest neat application of technology; it's really about improving the value of the company using technology."

The winners demonstrate a strong connection between the envelope-pushing activities of people continually dreaming about what their business could be and the reality of what they can actually build and embrace—and afford.

"IT management is enormously complex," says Roscitt. "The CIO must be able to encourage and support the business need to connect and communicate without letting the budget balloon out of control."

This year's award winners, who come from a variety of industries as well as both local and federal government, have done just that. We hope you find the profiles of the winning companies instructive, even inspiring. And we encourage you to submit your own applications for next year's awards. An application form follows page 16.

Special thanks to Rick Swanborg, president of ICEX, who comanaged the awards process with me for a second year; to the judges and process team (see Page 30), who volunteered their time and considerable insight; and to AT&T Solutions for sponsoring the program. These awards would not be possible without their participation.

Abbie Lundberg

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CIO

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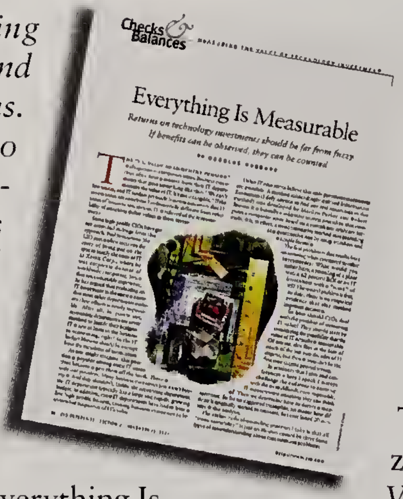
MEASURE FOR MEASURE

Editor's note: The following exchange between gurus typifies the contentiousness surrounding measurement of information technology's value. Few other IT subjects ignite the strong, polarized opinions that flare up when talking about whether, when and how to measure returns. We will continue to explore the philosophies, practicalities and controversies of IT ROI in future Checks & Balances columns and features.


Checks & Balances

Everything Is Measurable

Returns on technology investments should be far from fuzzy. If benefits can be observed, they can be counted

In the recent Checks & Balances column "Everything Is Measurable" [*CIO* Section 2, Nov. 15, 1997], author Douglas Hubbard attributes to me the following: "Accounting departments are never required to justify their budgets. IT is just as basic to the business as accounting, right? So the IT budget likewise should be exempt from the messiness of justification."

It appears that Mr. Hubbard quoted from the opening chapter of my 1990 book, *The Business Value of Computers,* about my trials with the Xerox Corp. Executive Committee but did not read what followed.

In my book I came precisely to the opposite conclusions from what he alleges to be my view. IT is definitely not like accounting. Much of IT is (or should be) an investment with expectations of measurable payoffs and justified accordingly. Accounting is not an investment, but an overhead expense. IT is mostly optional, accounting is always mandatory. IT offers economic tradeoffs. Accounting is only an alternative to going to jail.

Paul A. Strassmann
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Information Economics Press
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Mr. Hubbard's response:
The source of this characterization was not *The Business Value of Computers* but a much more recent article you wrote for *Computerworld* in which you state: "It's absurd for a CEO, chief operating officer or chief financial officer to demand that the CIO prove simply and directly how computer budgets relate to profits" ["Computers Don't Make Money, People Do," *Computerworld*, Feb. 19, 1996].

This comment seems quite clear. In retrospect, I should simply have offered this quote as is to specify your recent view on the issue. On the other hand, I should be clear that, the *Computerworld* article notwithstanding, your work argues that IT has a measurable value—which leaves an apparent contradiction in your claims.

Regarding the comment about IT being "like" accounting, that is not what I said. I said it was "just as basic to business as accounting." Furthermore, you once compared IT to accounting (which is all I was doing) insofar as you wondered why the same standards do not apply to both: "Have you ever heard of anyone asking about the accounting budget?" ("Information Politics and Economics: The Keys to Information Superiority," Chicago chapter of the Society for Information Management (SIM) seminar by Paul Strassmann, June 19, 1996).

Your previous comments seem to support my characterization, but if you are claiming that these comments do not represent your current views for what-

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ever reason, then I have no problem making these retractions, especially since they have no material effect on the point of my article.

Douglas Hubbard
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Mr. Strassmann's response:
In your response, Mr. Hubbard, you quoted me out of context when you took a sentence from the *Computerworld* article. I have repeatedly shown that computer budgets indeed can and must be justified, but only as a very important (catalytic) component of a business program. Incidentally, my *CW* article only said that computer budgets cannot be related to profits "simply and directly," which is a far cry from alleging that they should be exempt from justification.

Paul A. Strassmann

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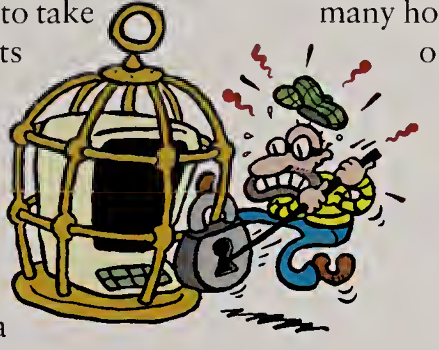

CREDIT CHECK

My visit to the Computer Security Canada Inc. Web site to take a peek at the "exploits of the world's most notorious computer bad guys" ["Hacker Attack Facts," Trendlines, *CIO* Section 1, Nov. 15, 1997] yielded a surprising result. The CSCI Web site made extensive use of frames to supply me with content from other Web sites. The Web site URL you published contained what amounted to a page of links to real Halls of Fame, which were subsequently displayed below the CSCI toolbar frame. As a Web developer I find myself wondering: "Who should be considered the real computer bad guys?" Please give credit where credit is due. CSCI did not create these Halls of Fame. What they did do was compile a good resource page dedicated to "Media Examples of Security Breaches." The many hours of development time that obviously went into creating the Halls of Fame were spent by others.

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LEAVE IT ALONE

Your story about Close Call Corp. and your editorial column noting it ["Anatomy of a Failure," *CIO* Section 2, Nov. 15, 1997] were illustrative of the grammar-poor but insight-rich adage: Don't fix it if it ain't broke.

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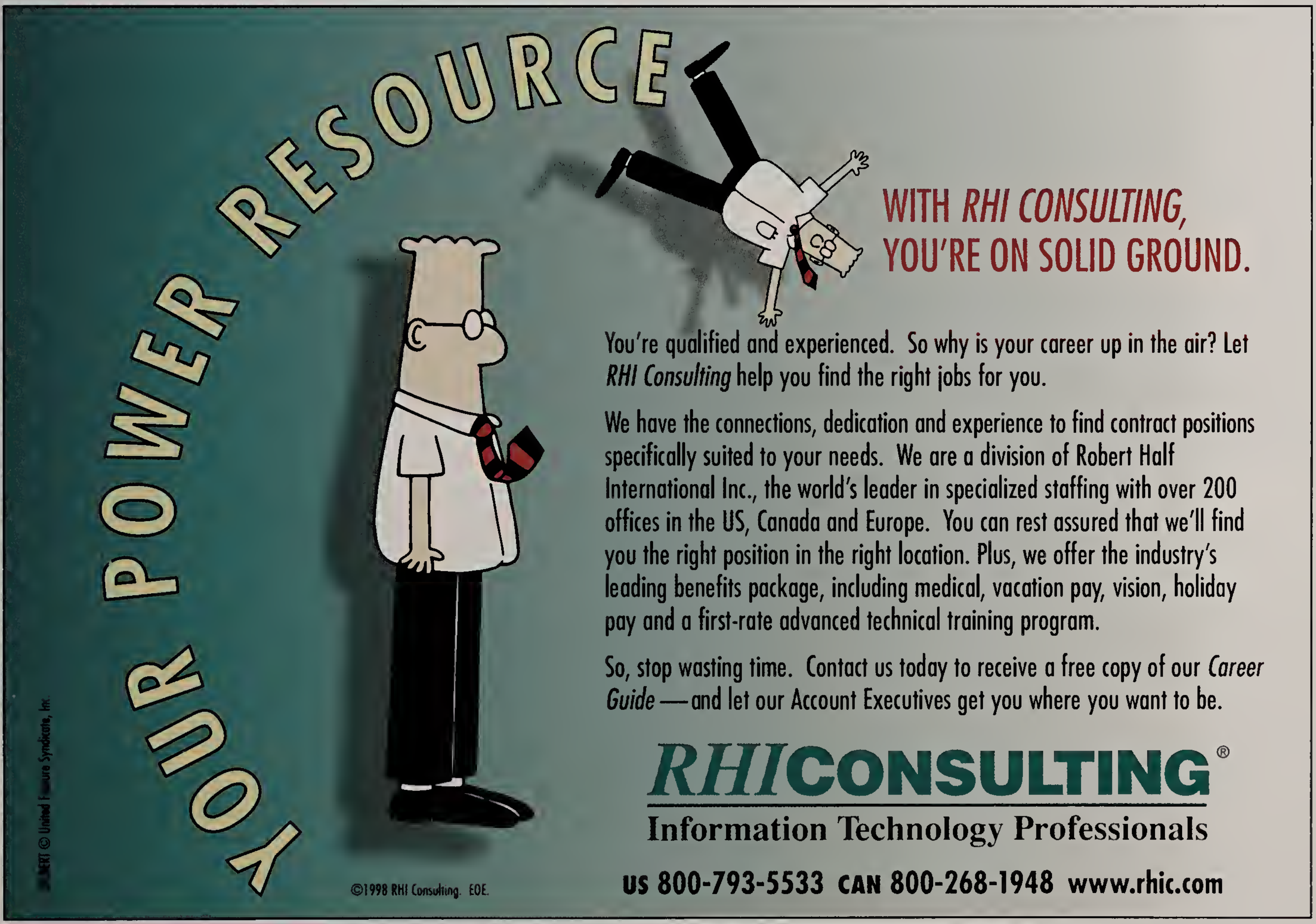
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Publisher's Note

Who is Thomas Penfield Jackson? And why, as CIO of your company, should you care?

Jackson is the U.S. district court judge presiding over the Justice Department's antitrust case against Microsoft Corp. His decision in the case, due by May 31, will impact your users, your OEMs and your corporation's use of technology for competitive advantage in the future.

His first move in the case—the appointment of Harvard Law School Professor Lawrence Lessig as a "special master" to assist him in the final ruling—clearly shows the world he is no Judge Stanley Sporkin, the U.S. district court judge who freely admitted he relied on a popular anti-Microsoft book in ruling against Microsoft several years ago.

The team of Jackson and Lessig has many in the industry satisfied that all parties in this case will be heard fairly. But how will the judge rule? Several indications suggest that Jackson and Lessig may head down the path of U.S. District Judge Harold W. Greene, who oversaw the breakup of the American Telephone and Telegraph Co. in 1984.

The most significant aspect of Jackson's Dec. 11, 1997, decision was not the interim ban prohibiting Microsoft from requiring that computer hardware manufacturers bundle Microsoft's Internet Explorer browser in their machines. (Customers—and I am one—happen to like the product. And tellingly, in the days following the December decision, not one hardware OEM celebrated its release from Microsoft's cyber handcuffs.) Rather, it was the judge's comment near the end of the initial judgment that was most revealing:

"The probability that Microsoft will not only continue to reinforce its operating system monopoly by its licensing practice but might also acquire yet another monopoly in the Internet browser market is simply too great to tolerate indefinitely. Those practices should be abated until it is conclusively established that [they] are benign." (Are monopolies ever "benign"?)

Add the judge's concern about the monopolistic issues of the case to the professor's predilection to focus on broader social implications of cyber law, and you have to consider whether this pair might conclude that the Windows/Internet Explorer monopoly on the desktop is comparable to AT&T's monopoly through the local Bell operating companies.

Is Microsoft merely a software company? Or has it succeeded beyond its wildest dreams in becoming the one-stop shop for systems software, applications and content? This will be the crux of Jackson's decision: Is Microsoft a software company or an information company?

The judge's inkling that a Microsoft dominant in both of these realms will not be "benign" to users raises the possibility that he and Lessig may propose that Microsoft be broken up into software and information companies.

So, mark your calendars. May 31 is shaping up to be the most significant technological day of the year, and maybe the decade. By then, we will all know who Thomas Penfield Jackson is.

Gary J. Beach

PHOTO BY WEBB CHAPPELL

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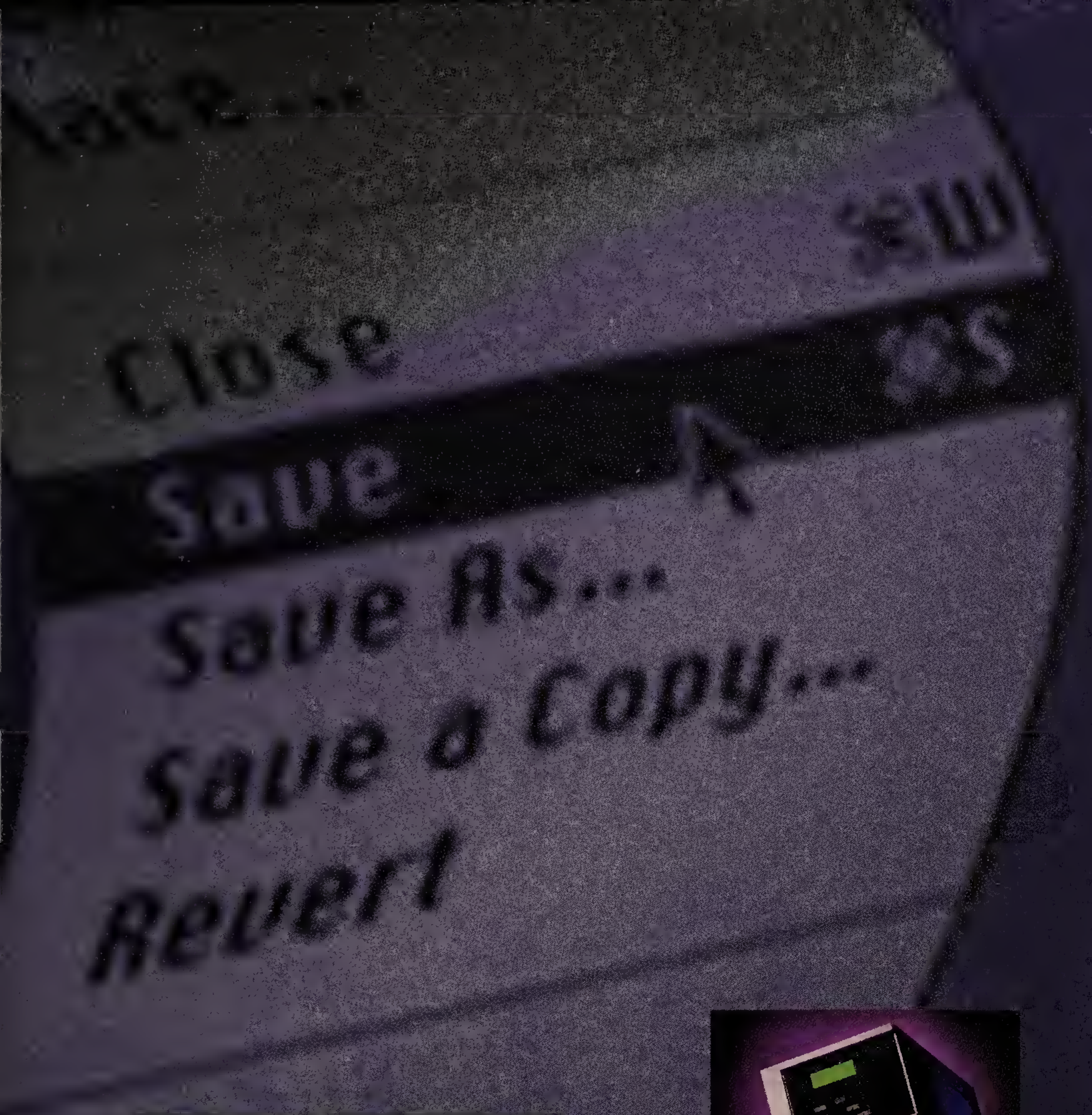

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Trendlines

NEWS, INSIGHT, HUMOR, REVIEWS

Edited by Katherine Auer

Your Wish Is Its Command

VIRTUAL TICKET AGENT Your silver anniversary is approaching, and you want to arrange a very special night out for you and your beloved. Like any IS executive, though, you're pressed for time and don't have hours and hours to spend planning that perfect evening. Well, take heart: Soon software from Ticketmaster Group Inc. will be able to help you pick out a musical playing downtown that your spouse is guaranteed to love, give you a view of the stage from every section in the auditorium so that you can choose the best available seats, locate an elegant French restaurant nearby and even tell you the best place to park.

Ticketmaster and Intel Corp. are collaborating on an application that will act like a personalized entertainment ticket agent. When the system goes live later this year, users will be able to download software for free—or purchase it on a CD-ROM for a nominal charge—that will collect data from Ticketmaster's Web site and alert them when a favorite band, play, sports team or event is scheduled at a venue in their area. A personalization feature will flag events according to users' tastes. The system will push notices of upcoming events to users' PCs, operating in the background while users surf so they won't be stuck waiting for screens to load. "It will sneak bits to you while you are reading [another] page," says Tim Yiu, director of software engineering for Intel's Content Group in Santa Clara, Calif.

So after you fill in the personalization feature according to your spouse's tastes, the system will suggest which upcoming plays or concerts will fit the bill. Then you can find the best seats and order them online. The system will feature virtual reality modeling language (VRML) and panoramic photographic renderings of venues giving views from every seat, and will even point out the nearest staircase, restroom and vendor booths. Next, the system will help you choose a restaurant and a cafe to visit after the show by providing listings of eateries and other attractions near the stadium, theater or arena.

Now if it could just handle the driving, too.... ■

Mine Games

HIGH-TECH SPORTS Imagine you're a coach in the NBA. What can you rely on to help bring your team to victory? There are, of course, the full-court press, the pick and roll, the fast break. But today, National Basketball Association coaches also have a different kind of weapon in their arsenal: data mining. About 20 NBA teams have been using Advanced Scout, a data mining application developed by IBM, to hone their game plans.

Orlando Magic Assistant Coach Tom Sterner, for example, credits Advanced Scout with a strategy about-face that nearly helped his team knock off the Miami Heat in last year's playoffs. It was the middle of a best-of-five first round series, and the Magic had been beaten badly in the first two games. Clearly, they needed a spark to stave off elimination in game three. With Advanced Scout, Sterner studied the Magic's various player lineup configurations, looking for an edge.

The system revealed that the Magic's starting back court duo of Anfernee Hardaway and Brian Shaw rated a minus 17 in game two, meaning that while they were on the court, the team gave up 17 points more than it scored. When Hardaway teamed up with

ILLUSTRATION BY PHILIP ANDERSON; PHOTO BY DOUG MINDELL

APPLICATION FORM

1999

CIO MAGAZINE
HONORING BUSINESS ACHIEVEMENT
ENTERPRISE
THROUGH THE INNOVATIVE USE OF
VALUE
INFORMATION TECHNOLOGY
AWARDS

APPLICATION DEADLINE: JUNE 15, 1998

Presented By

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1999 CIO MAGAZINE ENTERPRISE VALUE AWARDS℠

HONORING BUSINESS ACHIEVEMENT THROUGH THE INNOVATIVE USE OF INFORMATION TECHNOLOGY

CRITERIA

The CIO Magazine Enterprise Value Awards honor technology-enabled business achievement arising out of effective business/IS collaboration.

Entries will be judged on the following criteria:

- **STRATEGIC IMPACT**
- **CUSTOMER IMPACT**
- **FINANCIAL IMPACT**
- **TECHNICAL EXCELLENCE**

We invite applicants to consider the broadest possible spectrum of enterprise value. The following list of IT-enabled benefits is not inclusive but rather is intended to help guide applicants' thinking:

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- Transformation of the terms of competition within the market
- Increased market share

CUSTOMER IMPACT

- Customers have more choices of products and services
- Customers receive better products and services at lower cost
- Transaction process is more rewarding/less time-consuming

FINANCIAL IMPACT

- Lower costs due to streamlined operations
- Increased profits
- Increased operational effectiveness

TECHNICAL EXCELLENCE

- Overall technical innovation
- Uniqueness of solution within the organization's industry
- Complexity of the problem or opportunity the system addresses

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SELECTION PROCESS

Finalists are chosen by a screening panel of *CIO* editors and independent consultants. Each finalist will be subject to an in-depth analysis of the nominated system (to be performed by *CIO* or its agents). This analysis, which may require a site visit, will be based on interviews with sponsoring executives and system users and will be designed to substantiate all claimed benefits. Winners are selected by an independent panel of judges—prominent IT executives from a variety of industries.

IMPORTANT DATES

Deadline: Applications must be received by **June 15, 1998.** Notification of winners will occur in October 1998.

ENTRY GUIDELINES

1. The system must have been fully operational prior to July 1, 1996.
2. Entrants must agree to be featured, along with their systems and organizations, in a *CIO* article.
3. Entries must be complete.
4. Entries must be on 8.5-by-11-inch paper, one side per sheet.
5. The application form may be reproduced.
6. Up to three entries from one company will be considered, but each entry must be submitted separately. Only one entry per company can win.
7. Entries must be made jointly by the IS executive sponsor AND by the business sponsor for whom the system delivers value.
8. IT vendors, public relations and advertising companies, consultants and other third parties may NOT apply on behalf of another company. They are encouraged to forward this form to the "owner" of the system or to contact CIO Communications to recommend that an application form be sent to the client.
9. All entries must be computer generated or typed; no handwritten entries will be accepted.
10. When feasible, an additional copy of the entry should be sent on a 3.5-inch disk. Electronic entries must be limited to word-processing and spreadsheet packages that are compatible with Microsoft Word and Microsoft Excel.

For more information, visit our Web site at *www.cio.com/eva*
or contact Lisa Kerber at *508 935-4449* or via e-mail at *kerber@cio.com*.

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Four criteria are essential...

1. **Strategic Impact**
2. **Customer Impact**
3. **Financial Impact**
4. **Technical Excellence**

If your innovative solution meets the above criteria, please complete this Enterprise Value Awards application form and return it to us no later than June 15, 1998. *CIO* magazine will feature profiles of the winning organizations and the executives who have proved the positive and sustained impact of technology on enterprise value.

In February 1999, CIO and AT&T Solutions will host a special awards ceremony honoring the CIO Enterprise Value Award winners at the annual CIO Enterprise Value Retreat.

For more information, visit our Web site at *www.cio.com/eva* or contact Lisa Kerber at *508 935-4449* or via e-mail at *kerber@cio.com.*

CIO Enterprise Value Awards

TIME LINE

Applications Due:
June 15, 1998

Winners Announced:
October 1998

Awards Ceremony:
Jan. 31-Feb. 3, 1999
at the CIO Enterprise Value Retreat, Westin La Paloma, Tucson, Arizona

1 COMPANY/BUSINESS UNIT

Name of parent company

City, state where headquarters are located

Publicly or privately held?

Annual revenues

Industry

Name of business unit or organization

City, state where located

Number of employees at business unit

URL

2 ENTRANTS

A. Name of entering IS executive/system sponsor

Title

Name of division, department or unit

Address

City

State Zip

( ) ( )
Telephone Fax

E-mail

B. Name of entering business-unit executive/sponsor

Title

Name of division, department or unit

Address

City

State Zip

( ) ( )
Telephone Fax

E-mail

3 SUPPORTERS

Please list four people who are willing to be interviewed with regard to the system, its development, its use and the value returned. At least one should be a member of the technology team that developed the system and should have played a significant role. At least one should be a primary user from the sponsoring business unit. The other two may be from either organization or may represent suppliers, customers or others intimately familiar with the system.

A. Name

Title

( ) ( )
Telephone Fax

E-mail

Reason for inclusion

B. Name

Title

( ) ( )
Telephone Fax

E-mail

Reason for inclusion

C. Name

Title

( ) ( )
Telephone Fax

E-mail

Reason for inclusion

D. Name

Title

( ) ( )
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Reason for inclusion

DEADLINE: JUNE 15, 1998

Mail to: CIO Enterprise Value Awards • CIO Communications, Inc.
492 Old Connecticut Path • P.O. Box 9208 • Framingham, MA 01701-9208
Visit our Web site at www.*cio.com/eva*

For more-detailed information on the type of data the judges would like to see, including a model application, please visit our Web site at *www.cio.com/eva*.

4 THE NOMINATED ORGANIZATION

Please tell us about your organization (company, business unit, agency) in 500 words or less. Include information on

- When the organization was founded
- Mission statement
- Major products and services
- Markets served
- Your organization's standing within its industry
- Any other data you believe to be relevant in terms of general background

5 THE NOMINATED SYSTEM

Tell us about the nominated system and demonstrate its importance to the organization by completing the following sections. Please limit your material to one or two pages.

System Description: In one sentence or less, describe the system or IT initiative you are nominating (e.g., order-entry or sales-automation system; global intranet).

Date Deployed: Please indicate when the system was fully rolled out. If all users were not online by **July 1, 1996,** please detail what went live when.

Technical Profile: Briefly describe the technology of the nominated system, including its architecture; hardware, software and development tools used; and networking/communications hardware, software and services. Please include the names of all major vendors and products.

6 EVALUATION CRITERIA

Describe the primary business objectives of and value delivered by the IT investment. Please limit this section to five pages.

Statement of Value: List the three most important contributions the system has made to the business (these can demonstrate strategic, customer or financial impact as described in the "Defining Value" section on the first page of the application form). Please limit this answer to a few hundred words.

Strategic Impact: Define the ways in which the system has had strategic impact and describe in detail how the system delivers that impact. Make sure to include supporting data. For some examples of this, please refer to our Web site at *www.cio.com/eva.*

Customer Impact: Describe in detail how the system has benefited your customers. You may include examples from the organization's ultimate customers (consumers), the business users of the system, and suppliers or business partners affected by the system.

Financial Impact: Provide a detailed, one-page summary of the nominated system's investment costs (including all upfront development expenses and annual maintenance charges). Also provide details of the financial returns (including increased profits, reduced costs and indirect cost-avoidance). Please be specific about where the money is going/coming from and distinguish between actual and projected costs/returns.

This data is required to make it past the first round of judging. If your company is selected as a finalist, you will be required at that time to fill out a standardized table detailing specific costs and returns.

Technical Excellence: Describe the degree of overall technical innovation of the solution (does it employ cutting-edge technology?); its uniqueness within your industry (is this an industry first or second, or is this a common solution?); and the complexity of the problem or opportunity it addresses. Please be as specific as possible and include supporting data.

7 OTHER CONSIDERATIONS

Scope and Impact: Identify the functions (e.g., customer service, manufacturing, sales) that were changed by the system, the nature of those changes and their impact on the business.

The Importance of IT: Explain the importance of the IT component to the overall business change. Could the results have been achieved without IT?

Collaboration: Describe how the business unit and IS organization worked together throughout the project, from concept to implementation. Who initiated the effort? What were the specific tasks fulfilled by the business unit? By the IS organization?

8 TRUTH OF INFORMATION RELEASE

The following release must be signed by both nominating executives if the application is to be considered. Unsigned releases will invalidate the entry.

I hereby state that the information provided is true and complete to the best of my knowledge and belief.

I authorize the release and use of, in connection with the CIO Enterprise Value Awards program, any and all materials furnished by me or others at the company contacted for this judging. I understand that information submitted on this application or subsequently gathered during the evaluation and judging process may be used in articles or any other type of publicity relating to the CIO Enterprise Value Awards program.

I also authorize the release and use of my name, my company's name and my likeness, including but not limited to any photographs and any recording of my voice or image that may be taken of me for *CIO* magazine. I agree that no compensation shall be due me or my company for such usage.

I recognize that failure to meet these conditions or to provide sufficient material that can be published can cause the application to be rejected at any point in the process at the sole discretion of the sponsors.

____

1. *Signature of nominating IS executive* *Date*

____

2. *Signature of nominating business executive* *Date*

9 OTHER EDITORIAL OPPORTUNITIES

If you are not selected as an award recipient, are you willing to be contacted for inclusion in other articles in CIO magazine?

Yes ☐ **No** ☐

How did you learn about the CIO Enterprise Value Awards program?

☐ *CIO* magazine
☐ cio.com Web site
☐ Consultant
☐ Systems integrator
☐ PR agency
☐ Other (please identify) ____________
☐ Academician
☐ Advertising agency
☐ IS staff member
☐ Other publications
☐ Vendor

CHECKLIST

Have you filled out...?

☐ **Company/Business-Unit, Entrants and Supporters Information**

Have you included on separate pages...?

☐ **Nominated Organization**
☐ **Nominated System**
☐ **Evaluation Criteria**
☐ **Other Considerations**

Have both entrants signed and dated...?

☐ **Truth of Information/ Release**

Have you checked off...?

☐ **Other Editorial Opportunities**

☐ **How you learned about the CIO Enterprise Value Awards program**

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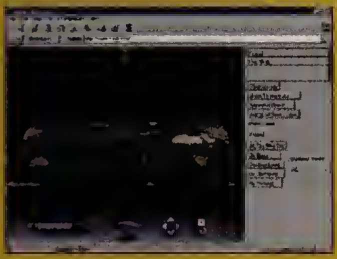

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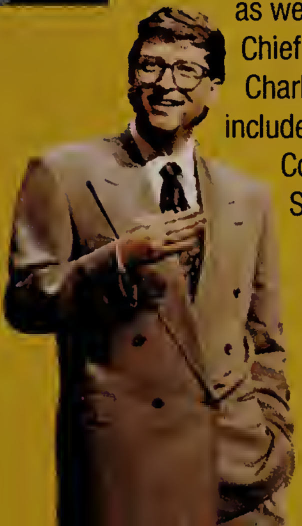

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backup guard Darrell Armstrong, however, the Magic fared much better—a plus 14.

In the next game, the Magic increased Armstrong's playing time. The strategy worked: Armstrong scored 21 points, Hardaway scored 42 and the Magic won 88-75. The Magic elevated Armstrong to the starting lineup in game four and they defeated the Heat again. The revamped lineup couldn't hold off the Heat in the deciding fifth game, but Advanced Scout did help the Magic transform what could easily have been a three-game whitewash by the Heat into a competitive five-game series.

Advanced Scout is a data analysis tool that coaches use on laptops both at home and on road trips to mine data housed on the NBA's central server. The events of each game are categorized statistically—by points, assists and fouls, etc.—and time stamped, allowing coaches to easily search NBA game videos to give meaning to statistical findings. So, for instance, if a coach finds via Advanced Scout that a star opposing player has trouble scoring against certain players on his team, he can pinpoint the times on the game tapes when the opposing star goes head-to-head with those players and devise a defensive strategy.

Advanced Scout's developer, Inderpal Bhandari, created the application when he was a researcher at IBM's Thomas J. Watson Research Center to show how technical neophytes can use data mining. "Coaches are clearly untrained in statistical analysis, but they do use data to make critical decisions," Bhandari says. Today Bhandari, now president of Virtual Gold, a data mining software company based in Scarsdale, N.Y., is applying what he learned from Advanced Scout to develop software for corporate users.

Meanwhile, another pro sports league, the National Hockey League, is developing its own data mining application. NHL-ICE, a joint technology venture between the league and IBM, rolled out an electronic real-time game scoring and statistics system last November. In the works is a data mining application similar to Advanced Scout that will enable coaches, broadcasters, journalists and fans to mine NHL statistics. When they visit the NHL's Web site, fans will be able to use the system for rotisserie league play, while broadcasters and journalists will be able to mine game statistics for interesting tidbits to spice up their play-by-play calling and writing. The application should be available later this year.

Of course, all systems have their limitations. So don't expect the Tampa Bay Lightning to mine a Stanley Cup winning strategy.

–Peter Fabris

What's Purple, Plush and PC Compatible?

PHOTO COURTESY OF SHANDWICK

INTERACTIVE TOYS Is that Bill Gates cuddling a plush purple dinosaur? In what looks like an advertisement for unlikely partnerships, Microsoft Corp., the Public Broadcasting Service's PBS National Datacast subsidiary and Lyons Partnership LP, creator of Barney, the wildly popular children's character, have come together to create Interactive Barney.

Interactive Barney is the debut product from ActiMates, an early-learning system from Microsoft aimed at children ages two to five. The product, which looks like a regular Barney toy but comes equipped with sensors and batteries, works three different ways. As a standalone toy, it sings and plays. Used with specially encoded TV programs or videocassettes, it responds to what's happening on the television screen by commenting or asking questions. (Specially encoded versions of Barney & Friends, the PBS show that made the benignly smiling dinosaur an international star, began airing last November in 20 U.S. cities.) With a PC running Windows 95 and special CD-ROMs, it becomes even more interactive, reacting with motion or dialogue to on-screen events; in some cases, for example, it may lead a sing-along. The end result is that Interactive Barney can help teach children and offer support and companionship.

Parents need to reach deep into their pockets for this one; the toy alone, avail-

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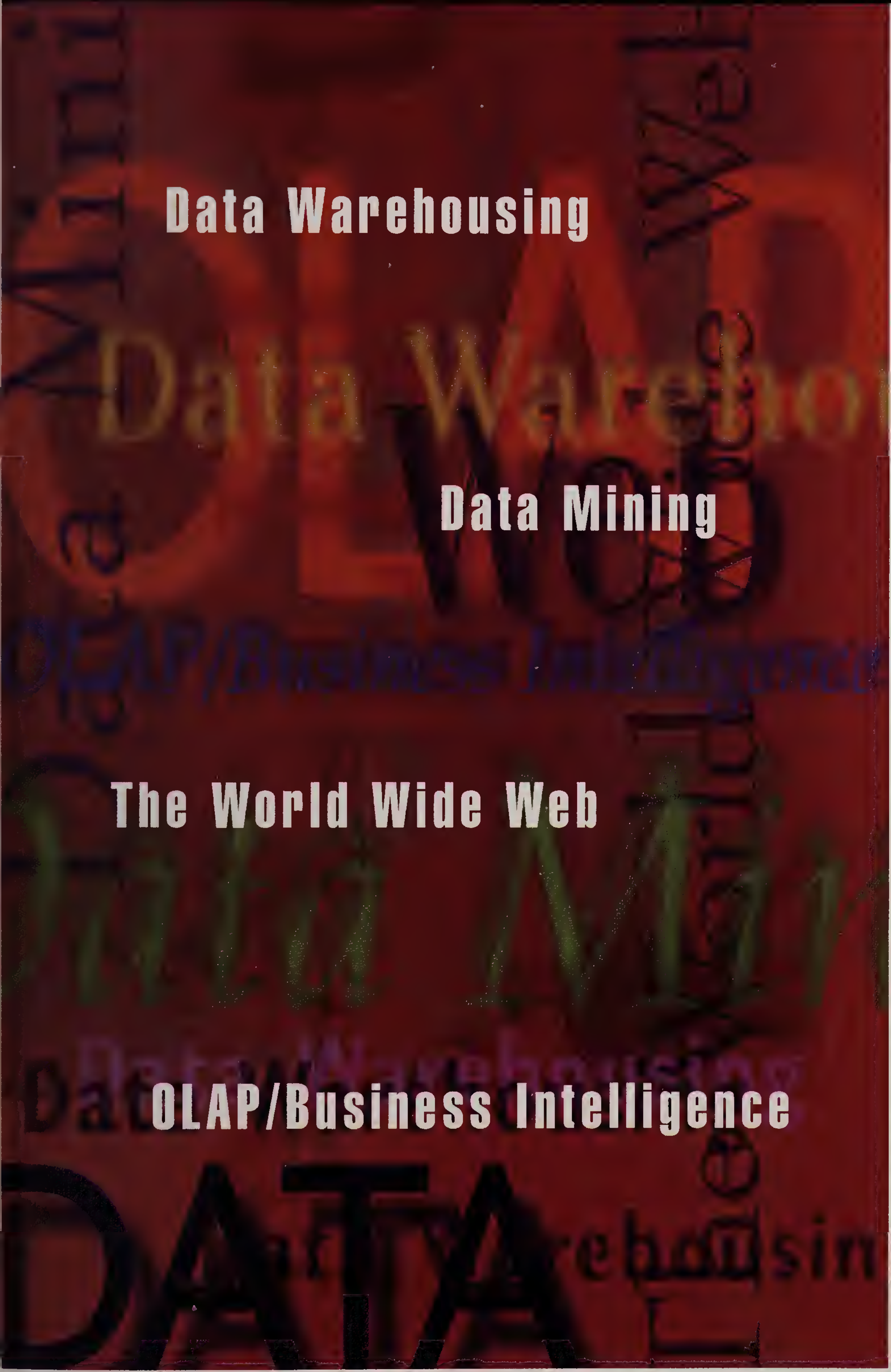

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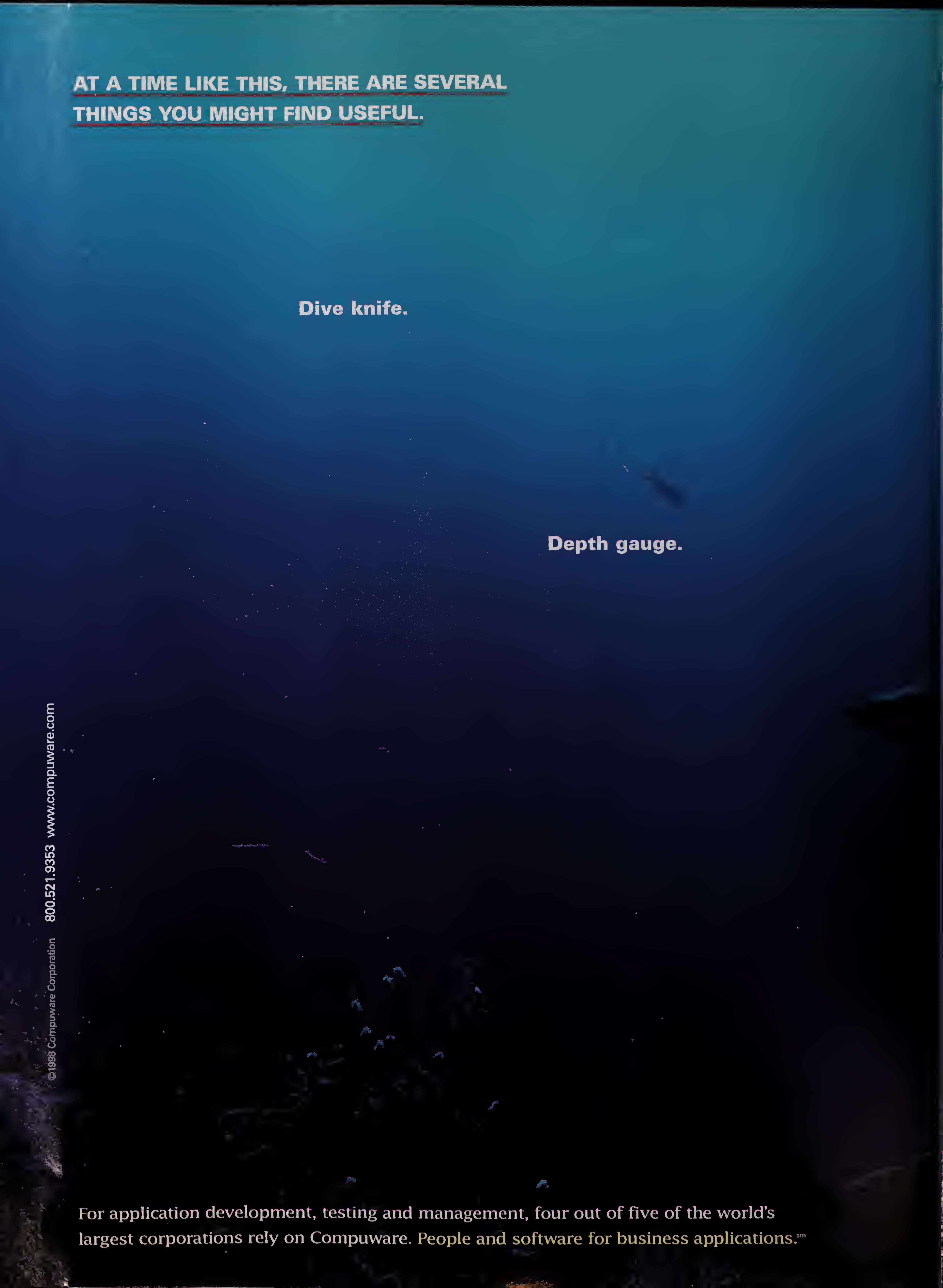
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able through toy stores, retails for $109.95. The TV Pack and PC Pack go for another $64.95 each, and software titles and videotapes are $34.95 and $14.95, respectively. But those who shell out the big bucks end up with an interactive creature with a 14,000-word vocabulary that can coach and encourage children as they learn to count and recognize colors and letters.

For more information, visit *www.eu.microsoft.com/products/prodref/276_ov.htm.* ■

FLASHBACK

10

Years Ago In *CIO*

February 1988

People love lists. *CIO* gave readers plenty of lists in its first 10 years—the dumbest user requests of all time; the top five worst reasons to outsource; innumerable CIO-100s, most beginning with the alphabetical anomaly 3M. The first list we published appeared in our January/February 1988 issue (see top list at left) and has run every year since—the top concerns of information executives, compiled by CSC (formerly Index Group).

Accompanying our first presentation of this list was commentary by then-Index research director Tom Davenport, now a professor and director of the Information Management Program at the University of Texas at Austin and a regular *CIO* columnist. Back in '88, Davenport noted that 34 percent of surveyed executives said their users and managers expected IT to play a "supporting" role in the company. Only one-third said their IS staffs understood the business environment well, and 40 percent agreed that it was difficult for IS to determine which way the business is going. Only 51 percent of respondents said their IS plan closely adhered to the organization's business plan. Any stab at alignment "would be difficult in this environment," Davenport understated.

So what's different 10 years later? Alignment is still at the top of the list (see bottom list at left), but are we making progress? "I think things may be a little better, but not by a huge amount," Davenport says today. "One reason alignment is a timeless list leader is that it's like Nirvana; you don't know exactly when you're there, and there are no pointers or indicators that you're moving in that direction."

One item that's disappeared from the top 10 is "educating senior management of IS potential and role." Society has done more than any CIO to "educate" the executive masses about IT. Because of that, the concern of 1988 has been reversed, says Davenport: "Now, instead of raising expectations, the CIO's role in education is lowering executive expectations, and telling CEOs it's not as easy or cheap as it sounds." Don't you love it?

–Richard Pastore

Critical MIS Issues for 1988...

1. Aligning IS and corporate goals
2. IS strategic planning
3. Educating senior management of IS potential and role
4. Using information systems for competitive advantage
5. Developing an information architecture
6. Integrating systems
7. Data utilization
8. IS human resources
9. Managing organizational changes caused by IT
10. Determining the appropriate IS funding level

...And Now

1. Aligning IS and corporate goals
2. Organizing and utilizing data
3. Capitalizing on advances in IT
4. Using IT for competitive breakthroughs
5. Connecting to trading partners electronically
6. Integrating systems
7. Improving IS human resources
8. Creating an information architecture
9. Updating obsolete systems
10. Improving the systems development process

SOURCE: CSC

GIVE YOURSELF PLENTY OF ROOM TO PARK YOUR DATA.

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Trendlines

Seeing Stars

ROBOTIC TELESCOPE Playing Doom and Quake over the Internet starting to get old, dude? Then try Distant Galaxies, from the astronomers at Case Western Reserve University (CWRU). Zapping intergalactic monsters will seem totally bogus once you've stirred the joystick on an eight-ton telescope so powerful that the Moon is too close to see—whoa!

At an observatory outside Cleveland called the Nassau Astronomical Station, astronomers are putting robotic controls on this huge telescope so that it will become totally remote, making it the biggest robotic telescope on the planet. The project will cost between $175,000 and $200,000, and is due to be completed in the next few years. When it is, anyone with a computer will be able to hook in on the remote action through a Web site and move the telescope around—one user at a time—to look at distant galaxies and nebulae.

The goal, according to Earle Luck, who is the chair of the astronomy department at CWRU, is to make the telescope's power available "for anyone who wants to use it." ■

Findings **Managing Information**

Spreading the Wealth

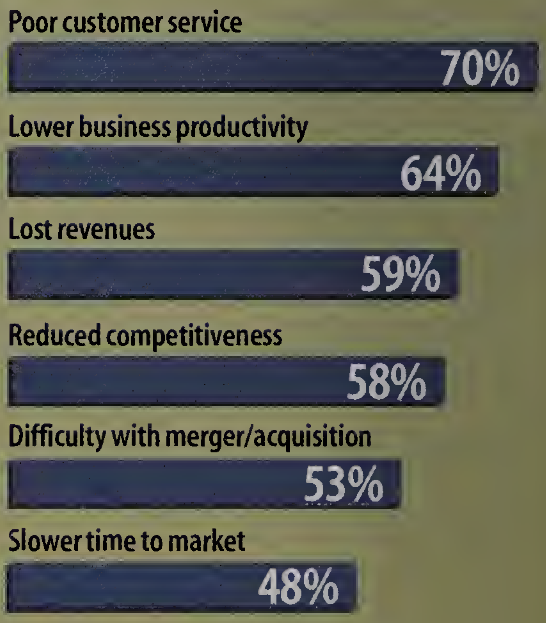
What, IT executives worry? You got it—and in large numbers, according to a recent survey. The source of their anxiety: the mandate they've been given to connect information stored on multiple platforms with end users across the enterprise who need it to do their jobs. Some 84 percent of the IT execs surveyed said they've been charged with carrying out such a directive; of those, 79 percent described themselves as "concerned" or "extremely concerned" about their ability to pull it off.

The survey, conducted for storage systems and software vendor EMC Corp. by the Strategic Research Division of Find/SVP, a New York City-based research firm, polled 700 IT leaders worldwide, each of whom oversees at least one mainframe, four Unix or LAN servers, 75 PCs and 50GB of total storage. The study, "Managing Information Across the Enterprise: Closing the Information Gap," also found:

■ Ninety-four percent of the executives are "taking control of critical systems previously dispersed throughout the enterprise" in order to better manage and protect that data. They say that keeping critical information dispersed outside the data center, where it can't be easily accessed and managed, affects customer service, lowers productivity and hurts the company's ability to compete (see chart at right).

Under Controlled

Percentage of 700 respondents who attribute the following problems to data dispersion:



SOURCE: FIND/SVP, "MANAGING INFORMATION ACROSS THE ENTERPRISE: CLOSING THE INFORMATION GAP."

■ Ninety-two percent gather information from a variety of computer systems, but most run into roadblocks when trying to share data because of the multitude of computer operating systems in use in their companies. Another factor is the impact that moving data over networks has on the performance of their main production systems, they say.

■ More than 70 percent have experienced rapid growth in storage requirements; 37 percent said their storage capacity will increase by more than 50 percent over the next two years.

■ Forty-three percent said their systems went down more than five times over the past year, and 13 percent experienced unplanned downtime that lasted more than a day. In addition, 22 percent said they have more than one hour of unexpected downtime each month. Fifty-three percent said they intentionally take their system down to perform backups; 34 percent do so to transfer data.

EMC commissioned the survey to help market its storage solutions. And, it says, the need is definitely there. "The rapid pace of adoption of the enterprise storage model has surprised even those of us who originally envisioned this market opportunity," says Jim Rothnie, senior vice president of corporate marketing for the Hopkinton, Mass., company. For more information on the survey and EMC's offerings, visit *www.emc.com.*

–David Pearson

ILLUSTRATION BY PHILIP ANDERSON

WHAT GOOD IS INFORMATION IF YOU CAN'T ACCESS IT QUICKLY?

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Think Tank *By Tom Davenport*

MAKING THE MOST OF AN INFORMATION-RICH ENVIRONMENT

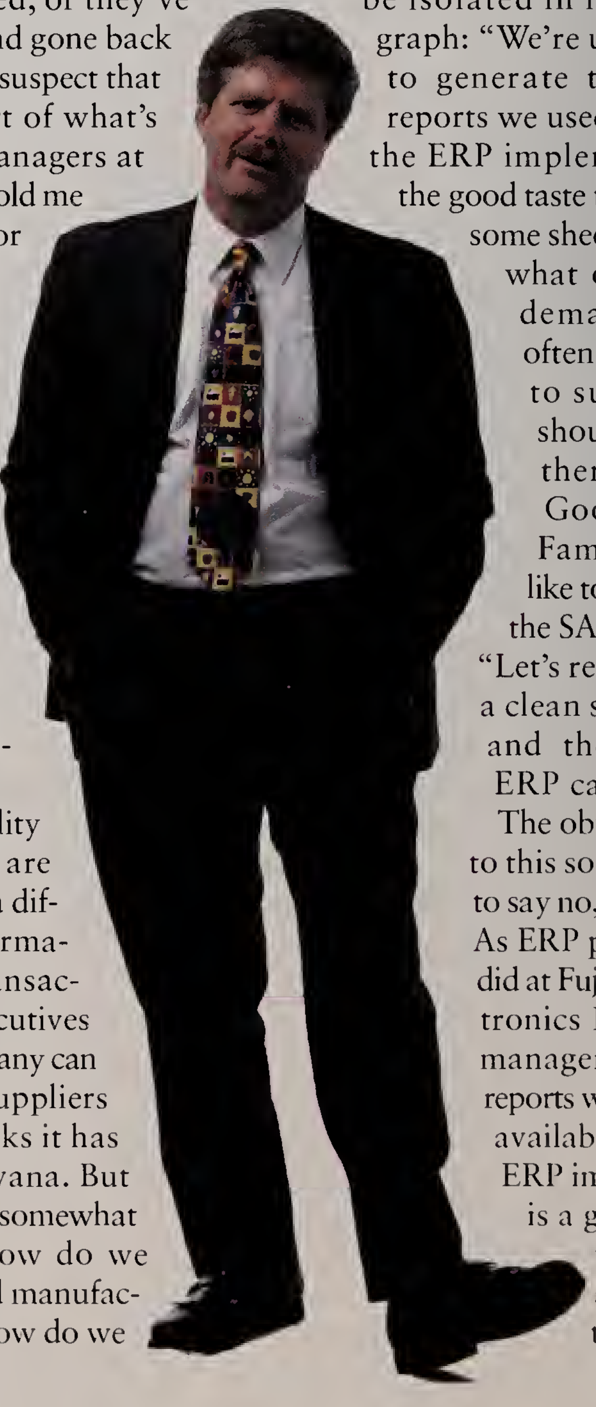
Serving Up ERP Value

Instead of a warehouse or mart, the best place to get ERP data is a “data deli,” where customized information comes with a side order of assistance

I WAS REARED TO THINK THAT THE primary purpose of installing new information systems was to provide better information—and then to use the information to make better decisions. However, if you take a look at most enterprise resource planning (ERP) projects, you might come away with a different impression of the objective: “getting the big honking system up and running,” for example, or “abiding by the Consultants’ Full Employment Act of 1997” or even “finding something to keep three levels of computers busy.”

Over the past three years I’ve looked at about 40 ERP projects in large companies through my consulting or in research projects with Ernst & Young LLP and the Roswell, Ga.-based Concours Group. As a devoted student of how information is used in business, I’ve searched the world over for a company that has not only installed its ERP system successfully (amazingly, a few such examples are beginning to emerge) but also used the resulting process-oriented, real-time, global information to change how the company manages and does business. Call me Diogenes: I’ve looked in vain. I’m not saying that such companies aren’t out there, but if they are, they’re hiding themselves well.

Maybe the problem is that ERP implementation is so difficult that no companies that undertake it have time or energy left over to think about deriving informational value from the system. After they are “finished,” perhaps the implementers are lying on the floor, exhausted, or they’ve declared victory and gone back to their real jobs. I suspect that this is at least part of what’s going on, since managers at several companies told me that the potential for getting better information and making better decisions was used to justify getting the ERP system in the first place, but (like the budgets and financial justifications for the systems) they were forgotten during the implementation journey.



Another possibility is that companies are totally focused on a different type of information objective: transactions. Perhaps executives feel that if the company can take orders, pay suppliers and issue paychecks it has achieved ERP nirvana. But I’m talking about a somewhat higher calling. How do we decide when to add manufacturing capacity? How do we know whether a promotion we’re running in Scotland is working as well as the one in Wales? How is cash flow going to look this quarter? And what’s happening with that hot new product we introduced to distributors in April?

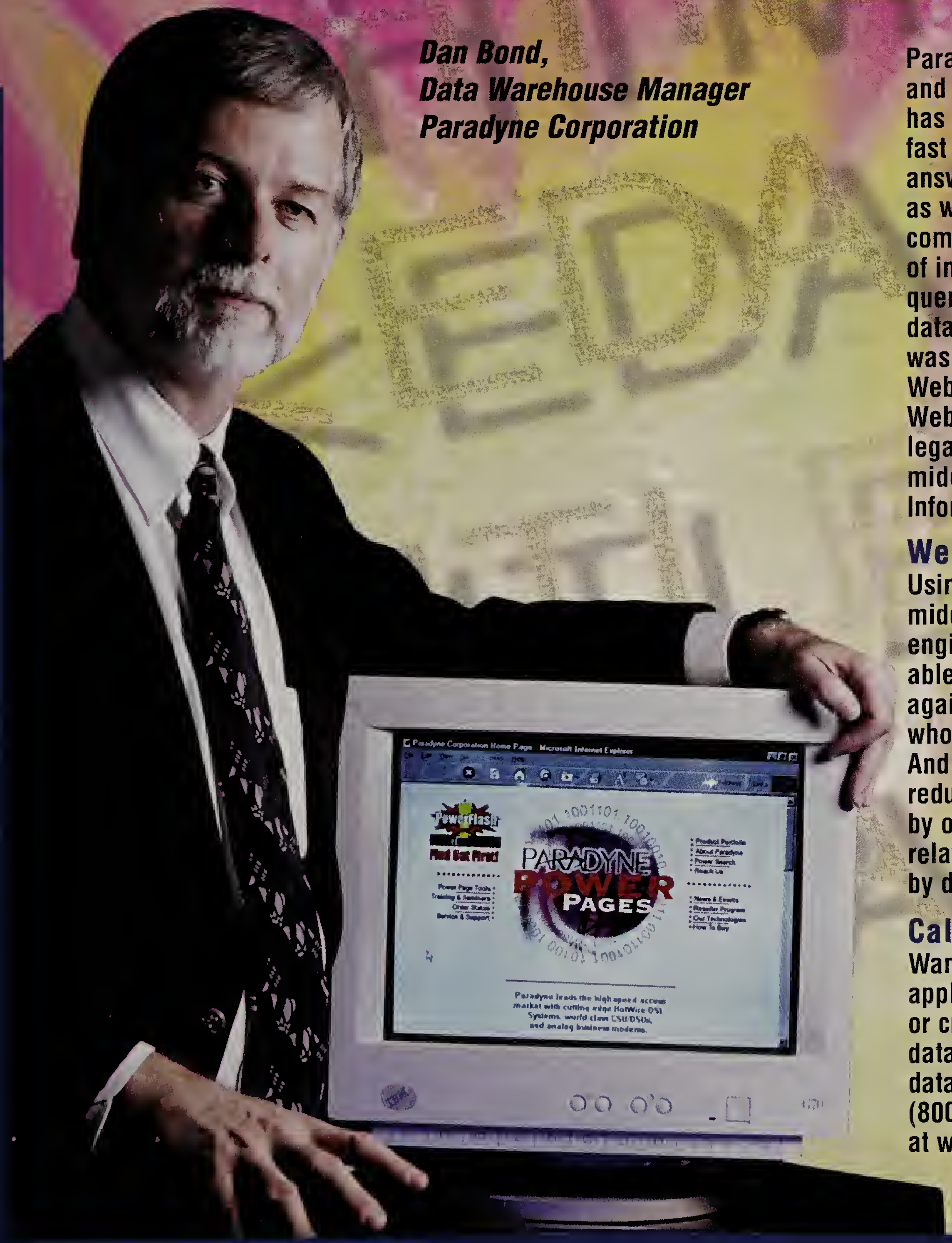
The companies I’ve researched haven’t yet addressed how they will use ERP-generated information to deal with those issues and the subsequent decisions they require. When I ask, for example, “What are you doing about management reporting with SAP (or Oracle or Baan or PeopleSoft)?” I get one of two answers.

The first is so depressing it must be isolated in its own paragraph: “We’re using our ERP to generate the same old reports we used to.” At least the ERP implementers have the good taste to say this with some sheepishness. “It’s what our managers demanded,” they often add. Agreeing to such demands should be right up there in the ERP Goof-Up Hall of Fame with “We’d like to rewrite one of the SAP modules” or “Let’s reengineer from a clean sheet of paper and then see what ERP can do for us.” The obvious response to this sort of request is to say no, never, no way. As ERP project leaders did at Fujitsu Microelectronics Inc., tell your managers that the old reports will no longer be available and that the ERP implementation is a golden opportunity to reexamine information needs.

PHOTO BY WYATT MCSPADDEN; CORNER IMAGE BY CARL TREMBLAY

“Our customers were on the Web. Our data was on the mainframe. Our solution was call The Builders.”

Dan Bond,
Data Warehouse Manager
Paradyne Corporation



Paradyne Corporation, a pioneer and leader in digital network access, has customers who not only want fast network access, they want fast answers on the status of their orders as well. And that used to mean the company had to process thousands of individual phone calls and manual queries against mainframe transaction data. The company knew the answer was a self-service application on the Web; but how could they integrate a Web reporting system with mainframe legacy data? The answer... EDA middleware and WebFOCUS from Information Builders.

Web Access to Legacy Data

Using Information Builders EDA middleware and WebFOCUS reporting engine, Paradyne customers are now able to launch dynamic queries against live mainframe data. The whole system was built in 90 days. And in less than two months Paradyne reduced order status telephone calls by over 40%, enhanced customer relations, and stimulated new business by driving customers to its Web site.

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and the Enterprise

Think Tank

ERP implementation is so difficult that no companies that undertake it have time or energy left over to think about deriving informational value from the system.

You can probably guess the other stock response to the reporting question. I don't want to give it away, but the phrase starts with "data" and ends with "warehousing." Technically astute respondents will toss in mentions of multidimensional analysis tools and perhaps even the magic term: data mining. I know that these concepts are cool beyond compare and that lots of software and servers are being bought as a result of this magic incantation. But I must admit that the whole warehousing thing is making me a little antsy.

Data warehousing is a bit of a cop-out. It's as if a company were saying, "We don't know what information you want or even how to help you figure out what you want. So we're just going to put everything we think anyone might possibly want into a big pile, and when you're ready, feel free to look around. And oh, by the way, when you find what you want, you'll have to figure out for yourself how to analyze and use it." The data mart is better than data warehousing only because the piles are smaller. We do have retail establishments that use this service model; the cafeteria comes to mind, although food is more visible and understandable than data. However, cafeterias aren't exactly high-quality dining experiences.

ERP data is voluminous and complex, and customers are going to need help dealing with it. Perhaps the right concept is not the warehouse or mart, but rather the "data deli," in which we can receive slightly customized information, with a little assistance.

Just as the deli guy tells you which salad is really fresh ("I wouldn't buy the egg salad today if I were you"), the data deli worker helps the customer interpret the complex ERP information menu. He can make recommendations about daily specials—currently popular reports, for example, or analyses that are ready for consumption—or steer customers away from stale information ("They haven't installed the HR module yet in India, so their employee totals are six months out of date"). And just as the deli man will stop you from putting ketchup on a Reuben, the IS counterman warns you when one unit's financial data isn't comparable to another's. The data deli worker (who might prefer to be called an information analyst), can help you ascertain what

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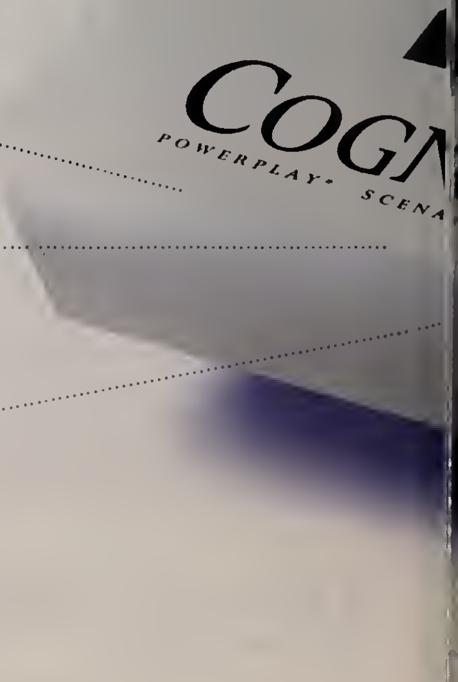

information you can get from an ERP system and can make sure you have access to as much of it as you want.

Now let's assume that the ERP information analyst gets you the data you need. What are you going to do with it? Not many firms have the management or decision processes in place to make effective use of the real-time, global information that an ERP system provides. For example, with your new system you can find out the accurate book value of your company (with all needed adjustments to, say, inventory, depreciation or new sales) as of five minutes ago. What strategic benefits can be derived from knowing what the company is worth? Should we check the value every five minutes?

In making effective use of the data to manage the company, the appropriate analogy is not the makings of a deli sandwich, but a recipe for a fine gourmet meal. To help us cook it, we'd like a Cordon Bleu-trained teacher who is familiar with ERP ingredients (a pinch of receivables, a dash of current assets) and common recipes in our industry, who can help us whip up tasty recipes that suit our appetites perfectly and who will write down all the steps so that we can cook for ourselves later. Or perhaps we could buy a book of recipes and tailor them to our own needs.

To continue this analogy, some ERP and other software vendors are hard at work not only on recipes but also on kitchen appliances and even kitchen designs. Journee Software Corp., a small startup in my hometown of Austin, Texas, is hard at work developing workflow processes that let its clients make use of ERP-generated information by providing them with tools and prepackaged software. The recipes they offer for making ERP decisions and transactions can be modified easily by the cook. Journee's goal is to teach clients to concoct not only a fancy dinner using ERP data about high-level management processes (such as capital allocation and strategic planning) but also a simple bag lunch, like completing an order-processing transaction.

With so many hungry ERP customers out there, other companies are creating their own meal tickets. CrossRoads Software Inc.'s CrossRoads InterChange Server, for example, combines ingredients from many different systems—ERP, customer service, sales force. And SAP is giving some thought to the design of an attractive kitchen and dining area where it can display information.

If you've got something simmering that involves the effective use of your ERP data, please let me know about it. I'll put it in my own version of the *Guide Michelin.* CIO

Thomas H. Davenport is a professor and director of the Information Management Program at the University of Texas at Austin. He welcomes reader comments at davenport@mail.utexas.edu.

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Value Judgments

This year's Enterprise Value Award winners have gone beyond technology glitter to produce business gold

BY CHRISTOPHER KOCH

DON'T EXPECT BOB BARKER AT THIS MONTH'S Enterprise Value Awards presentation. There will be no slick-haired crooners warbling, "There it is, IT excellence...."

The era of evaluating IT value based on the skin-deep pizazz of technology is over. These days, the technology still needs to shine, but the CIO must also demonstrate how the new system will open new markets, add revenue and increase customer loyalty. If CIOs are to deliver this kind of value consistently, the metrics of value need to change to emphasize content and character over technical superficialities. ROI is a case in point. It remains one of IT's squishiest metrics—dismissed by old-school technology zealots as crass

PHOTO BY RALPH MERCER; SCULPTURE BY JON SCHACKMUTH / MACKEEN GALLERY

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and meaningless and manipulated by IT opportunists to build budgets and enhance careers rather than improve businesses.

Judging the real value of an IT application means separating the impact of the application—on customers, markets and profits—from the razzle-dazzle of the technology. It requires a close examination of external factors that affect value, such as market forces, industry position, resource constraints, and cultural resistance and acceptance. To judge properly, you need to apply really smart minds to the task.

The EVA process team members and five judges qualify as really smart minds. They have impressive backgrounds as IT consultants, academics and leaders of worldwide IT organizations. Each year the process team, led by Rick Swanborg, president of ICEX, runs EVA finalists past a gauntlet of onsite visits, in-depth interviews and evaluations based on a series of six tough metrics (see "EVA Metrics," Page 37) in preparation for final judging. This year, the vetting process reduced the pool of entries from 56 to 13—and that was before the judges even got a swing at them (see "The Judges," Page 36).

Actually, it seemed they were going to take swings at each other during this year's daylong final judging session. Armed with 12-page final reports on each of the finalists written by the process team, the judges came into the meeting with some strong opinions, which made for lively discussion and a one-day crash course in IT value for those observing the process. From these discussions emerged some fascinating answers to the question that haunts every CIO: "How does an IT department consistently deliver value to the business?"

IT departments that nail the value conundrum display certain characteristics that set them apart from the average, competent IT group. They display characteristics that merit an award for excellence. Those characteristics are found among this year's EVA winners. Here, we define those characteristics, through the words of the EVA judges and the EVA process team.

Flexibility

Great technology is flexible enough to be used in ways the developer may not have envisioned. Great IT departments exhibit the same kind of flexibility. They do not jealously guard code just because they put many difficult hours of work into writing it. They do not prevent customers—or even customers

THIS YEAR'S WINNERS

BLACK & VEATCH's Powrtrak information system is a custom-built relational database used for design and project management data. With it, the company can complete construction projects faster, cheaper and with fewer errors than its competition.

PAGE 40

PROCTER & GAMBLE used a standardized set of processes and technologies known as Distributor Business Systems to turn third-party distribution channels into a competitive advantage in its emerging Asian and European markets.

PAGE 44

TECH DATA CORP. transformed itself from a catalog operation into an electronic commerce enterprise by creating a sales application that uses both the Web and CD-ROMs to sell its PC products, improving productivity and profits along the way.

PAGE 48

THE U.S. ENVIRONMENTAL PROTECTION AGENCY's Envirofacts Warehouse is a Web-accessible database that maps 700,000 sites handling potentially harmful substances. Now citizens can get information they need to locate polluters in their communities.

PAGE 52

STATE STREET GLOBAL ADVISORS built a new customer service system for retirement plan transactions just as the market for retirement plan management was taking off. SSGA's fast action moved it from 10th place in the market to third.

PAGE 56

NEW YORK CITY'S DEPARTMENT OF FINANCE collaborated with its Department of Information Technology and Telecommunications to create CAMIS, a database designed to track licensing fees and fines of business owners in the city. The system has helped reclaim lost revenues from the city's massive bureaucracy.

PAGE 60

The Enterprise Value Awards are sponsored by AT&T Solutions of customers—from taking advantage of a great home-grown application if sharing will serve the interests of the business. And perhaps most important, they don't stop when the project is "done." If the application meets the original requirements, they go out and find other ways to use it or combine it with other technologies to squeeze more value out of the investment.

This flexibility means that applications can penetrate and permeate every level of the business, bringing exponential returns. Tech Data Corp., one of this year's winners, created a suite of electronic commerce tools, called InterAct, to automate routine business processes such as product management, order management, logistics and financial management (see "New World Orders," Page 48). The twist came when Tech Data decided to give the tools to Tech Data's customers, who not only receive the software free of charge but also receive a version that they can customize with their logos and processes for use with their customers—all with Tech Data's blessing. Tech Data is happy to let customers share the glory because InterAct creates loyal, happy customers that spend more money.

"This application has seeped into business so completely that it is used at all levels of the value chain," says EVA judge Christopher Hoenig, who is director of the Information Management and Technology Division of the U.S. General Accounting Office in Washington, D.C. Besides making Tech Data's internal processes more efficient, InterAct also smooths the value chain bumps for the resellers and retail stores. The company's Web site attracts new customers and encourages existing customers to expand their relationship with Tech Data into new product categories. "Once you create a system like this and make it scalable, you make it so easy for people to do business with you that the costs of switching to a competitor are very high—not to mention the potential to build a larger relationship with those customers," adds Hoenig.

Endurance

By now, everyone knows that technology is not supposed to dictate business processes. But what do you do if the existing technology can't handle the processes you've envisioned?

Most companies either walk away from the new processes or, worse, cave and let the processes wither within the confines of available technology. "Sometimes we create processes that are so closely linked to technology that, when we change the technology, we have to change the process, too," says EVA judge Alana Ward-Robinson, CIO and vice president of Sara Lee Hosiery in Winston-Salem, N.C. Only if the business vision is strong enough and the technology patience is long enough can a company use technology to redefine the competitive rules in an industry.

HONORABLE MENTION

MERCK & CO. INC.
3-D Design System

METROPOLITAN PROPERTY AND CASUALTY INSURANCE CO.
Redesigned Business Policy Insurance Process

NCR CORP.
Enterprise Information Repository

Architecture firm Black & Veatch, one of this year's EVA winners, has clung tenaciously to a business vision it had almost 20 years ago: that the underlying logic and decision-making processes behind architectural designs could be "reused" across many different projects (see "Reengineering the Engineering Business," Page 40). The technology to support that revolutionary goal did not exist two decades ago, as Black & Veatch discovered during a failed three-year attempt to build a system beginning in 1979. "Back then, technology wasn't designed to serve business processes and it caused a lot of project failures," says Ward-Robinson.

But companies that believe in their visions don't give up the first time. Black & Veatch changed the industry with its Powrtrak system because it had the patience and perseverance to stick with the original vision and the business benefits it would reap. "Companies that are consistently successful are able to constantly build their capability to handle complexity," says Hoenig. "Black & Veatch has developed the ability to handle an extremely complex process as well as a complex technology."

In the course of taming all that complexity, the company changed the way its architects worked and forced its competitors to try to do the same. "They had the tenacity to stick with it and evolve with the technology while keeping their eye on the processes," says Ward-Robinson.

Execution

Which is a better indicator of success: being first with a technology that has business benefit or being second with that (now proven) technology but implementing it flawlessly and economically, while also having a dramatic impact on the bottom line? There's no contest; the winner is the company that is first with the technology and implements it quickly and cheaply.

If an example doesn't spring immediately to mind, don't worry—these kinds of successes are few and far between. Usually real-world constraints mean that technology firsts are expensive and time-consuming but can pay for themselves many times over if there are real business implications for being first. Those second to market usually get the stuff installed faster and cheaper, but they are much more vulnerable to displacement by competitors, who may implement even quicker and cheaper, gobbling up whatever spoils are left in the market.

That's why, when you're second, execution is everything. The implementation has to be cheap, it has to be fast, and there has to be enough room left in the targeted market for the technology to make a difference for the business. There also must be room in the collective company ego for being second with a good idea. "Many companies get into the 'not invented here' syndrome—especially in IT," says Ward-Robinson. "Companies that are focused on the health of the business first don't care whether they invent it or not."

THE JUDGES

The judges chose the winners based on the criteria, filtered by their own perceptions and experiences. Nominees were presented, discussed and given an initial vote of yes, no or maybe through a secret ballot. We held a second round of discussion for companies that received inconclusive votes. While we pushed for consensus, majority ruled.

ALBERT AIELLO JR.
President, Intelligent Document Factory and OPServer, both business units of Fidelity Investments

ROB COHEN
CIO and VP of Information/Technology and Capabilities, Astra Merck Inc.

JOHN CROSS
Head of IT, BP Group
The British Petroleum Co. PLC

CHRISTOPHER HOENIG
Director, Information Management and Technology Division, U.S. General Accounting Office

ALANA WARD-ROBINSON
CIO & Vice President
Sara Lee Hosiery

State Street Global Advisors retirement investment services cared only about winning market share while building its new customer service center and processes (see "Survival of the Fastest," Page 56). The technology wasn't new, but the market—outsourcing of retirement benefit programs—was ripe for companies that could offer reliable customer service. "Companies like State Street are developing systems that will be the next Social Security," says Hoenig. "When you align a major social need—retirement money management—to a good business solution and the right technology, you have an extremely high-magnitude value added."

With its quick entry into the market, State Street rocketed from nowhere, according to one company executive, to third in market share. "When a late adopter decides to use something a competitor is already using, it all gets down to how they turn around their business," says EVA judge Albert Aiello Jr., president of Intelligent Document Factory and OPServer, both business units of Fidelity Investments.

Simplicity

Simple is hard. This paradoxical maxim has haunted IT forever. Designing a simple, easy-to-use screen display for customer service representatives and getting the data they need for those screens is hard. Creating a Web site that "does stuff" in three mouse clicks is hard. But nothing is harder than creating a simple, repeatable technology solution that fits with the company's business strategy and creates business advantage.

That's because underneath every simple, repeatable technology solution is an elaborate core technology that is invisible to the user. Making those core technologies disappear is like making an elephant disappear—you won't get much cooperation from the one doing the disappearing. And if market demands change or the company shifts strategy, getting the elephant to move quickly is another challenge. The tools have to remain simple, even though the demands on the core technology may shift dramatically. "If you can get technology to the business in a simple, uncomplicated way, that's quite an accomplishment," says EVA judge Rob Cohen, CIO and VP of information/technology and capabilities at Astra Merck Inc. in Wayne, Pa. "Because it isn't simple to make it simple. It's quite difficult."

Procter & Gamble needed to think simple when it began concentrating on building its distribution network in developing markets in Asia and in Central and Eastern Europe. In these markets, low-tech, bulletproof portable computers and printers rattle around in the back of local distributors' vans as they make their way to remote villages. "Everyone talks about becoming global," says Hoenig. "Here's a company that's really doing it by establishing strategic IT architectural standards that are feasible to implement anywhere and that are designed for the lowest common denominator." (See "Continental Shifts," Page 44).

The tools are useless, however, if they cannot connect with a WAN that processes the orders and trades information between P&G regional and international headquarters , a feat that P&G is now piloting in Poland. "Even with the low-tech tools, there has to be complexity in the WAN," notes

Ward-Robinson. "But not everyone needs to be aware of how hard that simplicity is. That's the sign of a great technologist—someone who can mask that complexity for the ultimate end users."

Diplomacy

There is nothing more frustrating than developing a good technology solution that doesn't get used. Even worse, perhaps, is developing an application that works perfectly in a small area of the business and could be used across the company but isn't. How do you convince scheming business unit chiefs embroiled in bitter, meaningless political wars with their colleagues across the company to use a technology that the despised enemy business unit is using? One thing you don't do is lecture them on the need to be a clear-thinking team player with the best interests of the company at heart when making technology decisions that affect their hard-working, long-suffering employees.

You could try the "pilot project" route, in which you raise the visibility of the application to the rest of the company and grovel for the support of a high-level business executive who can beat the business unit chiefs into submission. A much harder but ultimately more powerful way to secure buy-in is to demonstrate the effectiveness of the solution with customers of the business units you're trying to reach. There is no way to argue with customer demand for a technology solution. Diplomacy is still critical—the business unit and its independent IT group still need to install the stuff—but the results of doing so are demonstrable.

Of course, that all goes out the window when you're talking about government bureaucracies, right? And all reason and logic disappear when you try to tackle the New York City government bureaucracy, where rudeness is an art form—fuhgedaboudit, right? Well, just ask New York City merchants who used to run between three different city agencies (Consumer Affairs, Health and Finance), trying to get the necessary documents and clearances to do business. They now need only show up at any one of those agencies, where agency employees can access a shared database developed by the Department of Finance's IT group (see "Collecting Its Due," Page 60). Any city agency can hook into the City Agencies' Management Information System (CAMIS) by connecting into the citywide SNA network called Citynet, using their existing, decrepit mainframe terminals. "This is beyond diplomacy; this is leadership," says Hoenig. "This is the finance IT people going to other agencies in the city and saying, 'Here's something that will be of value to us all. Get on board.'" They were able to communicate the common interest of creating an interagency solution.

"You have to be a highly credible group to be able to combine systems across such different agencies," says Ward-Robinson. "They didn't let bureaucracy stop them and they didn't let old technology stop them either."

Enterprise Value Awards on the Web

To learn more about this year's EVA winners, visit **www.cio.com/eva.** *See what past award recipients have to say about their EVA experience. While online, you'll also see a completed sample application, including judges' comments, to help guide you through the initial application process.*

EVA METRICS

↑ High ↗ Medium-High → Medium ↓ Low

Winners	Strategic Link	Operational Excellence	Technology Innovation	Infrastructure Excellence	Market Impact	Customer Impact
Tech Data	↑	↑	↑	↑	↑	↑
Black & Veatch	↑	↑	↗	↑	↑	↑
State Street Global Advisors	↑	↑	→	→	↑	↑
Procter & Gamble	↑	↑	↓	↑	↑	↑
NYC Dept. of Finance	↑	↑	↓	→	→	↑
EPA	↑	↑	↑	↑	↗	↑

Strategic Link: System's link to organization's key strategies

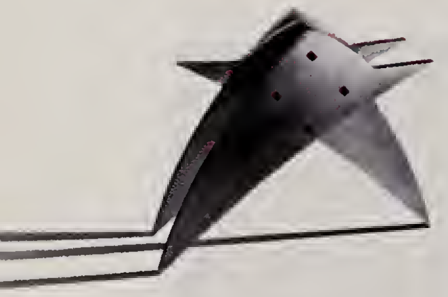
Operational Excellence: Relative impact on the organization's operations

Technology Innovation: Use of new technology to develop system

Infrastructure Excellence: Support of a common infrastructure that enables the organization to build new capabilities

Market Impact: Impact on the organization's market position *(e.g., new business development, improved visibility, etc.)*

Customer Impact: Impact on external customers *(e.g., higher satisfaction, new channel for distribution, etc.)*



THE PROCESS TEAM

The process team validated data, organized results and presented its findings to the judges. The team's objective was to make sure all the data that was presented had been investigated thoroughly and summarized effectively.

RICK SWANBORG
President
ICEX

MARY SILVA DOCTOR
Managing Partner
Omega Point Consulting

JIM McGEE
Partner
Diamond Technology Partners

JOHN STORCK
Professor
Boston University

VIRGINIA RECK
Senior Partner
Kendall Consulting Group

MADELINE WEISS
President
Weiss Associates Inc.

"The weak link in the chain is the one you have to think about the most," adds Cohen. "An aging infrastructure and a limited budget means you work with what you have and don't try to make everyone buy new desktop computers to use the system."

Trust

One of IT's deepest, darkest secrets has recently come to light, thanks to an unassuming bit of technology known as the Internet: Customers will do a lot of your work for you if you trust them with the information they need to make decisions. The days of seeing IT systems as vaults and dungeons of information kept well away from customers are coming to a rapid end. These days, IT systems act more like ticket takers at the football stadium—making sure no one is coming in armed or with malicious intent. Many core systems and highly private and proprietary databases are now open to anyone with a Web browser who can pass the security check at the turnstiles.

> IT value is as much a reflection of the quality and character of the people behind the systems as of the systems themselves.

The fear and loathing that gripped IT in the early days of Web access has been replaced by enthusiastic, albeit cautious, support. That's because the business is happy, and when the business is happy, things always get better in IT. The benefits of letting customers into the depths of the computer system to manage their wants and needs themselves—including increased customer loyalty and sales, decreased order entry errors and tracking problems—far outweigh the risks posed by a few ruffians.

For a government agency, opening up the gates could have more far-reaching consequences. This is why the Environmental Protection Agency was so far ahead of its time in offering Web access to its most prized environmental data. (See "A Civilian Action," Page 52). Sensitive Freedom of Information Act requests are now handled through the Web, eliminating the bureaucratic delays that have plagued the process for years. More important, however, small-town planning departments can now download detailed environmental information and intricate maps that would cost a fortune to produce locally. The EPA cannot control what those towns do with the information they get from the Web site, but its leaders trust that giving town planners more accurate information about wetlands and other environmentally sensitive areas will work to the public benefit in the end. "Businesses talk about moving decisions downstream to the customer—here's an example of moving decisions downstream to the citizen," says Hoenig. "The EPA offers direct access to a database that's of great importance to 250 million citizens."

If these profiles demonstrate anything, it is that IT value is as much a reflection of the quality and character of the people behind the systems as of the systems themselves and their purported ROI. Can a competent IT department deliver value without displaying the specific attributes mentioned above? Absolutely, say the judges. But can these IT departments deliver value beyond what is specified by the vendor or the consultant or the business if they don't display at least some of these qualities? Absolutely not. Read on to discover in detail the ways this year's EVA winners delivered more than the expected value to their customers.

Senior Editor Christopher Koch can be reached at ckoch@cio.com.

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ENTERPRISE VALUE AWARD WINNER

Reengineering the Engineering Business

The database **Black & Veatch** constructed revolves around shared data, not just drawings. And it's laying a foundation for global success.

BY TOM FIELD

TWENTY YEARS AGO, BLACK & VEATCH was a modest-sized engineering firm struggling for a piece of the domestic marketplace. Today, the 83-year-old Kansas City, Mo.-based firm is a global force, competing with the likes of Bechtel and Fluor. A $1.4 billion private partnership, it controls 30 percent of the domestic engineering and construction market and 24 percent of the same international market. The key difference between yesterday and today: Powrtrak.

A custom-built relational database, Powrtrak helped Black & Veatch change the rules of engineering and construction and gain great competitive advantage by shifting the focus from two-dimensional drawings to data. At any given time, Black & Veatch oversees hundreds of projects worldwide, each consisting of up to 250 people, 40,000 documents, 8,000 activities and $1 billion in installed cost. Yet, with Powrtrak, every bit of information about these projects—information that used to be conveyed with paper-based drawings or change orders—is centrally located, continually updated and accessible via the Internet and satellite to remote users anywhere in the world. Since its initial rollout in 1983, Black & Veatch has used Powrtrak for nearly 500 projects each over $100 million in value. Right now, Powrtrak is the centerpiece of Taiwan's $1.8 billion Lungmen nuclear power plant—the first such facility ever to be built with all its documents, drawings, background and calculations delivered on a single electronic database.

"I'm a big believer that if you're going to get a job, you're going to have to differentiate yourself from your competition," says Patrick G. Davidson, managing partner of Black & Veatch's Energy Group, where Powrtrak originated. "Powrtrak is our differentiator."

In awarding the Enterprise Value Award, judges were impressed by both Powrtrak's proven results and Black & Veatch's dogged determination to transform its business with evolving technologies.

Research and Development

Powrtrak began in 1979 as the brainchild of P. James Adam, now the company's chairman of the board. Then the head of Black & Veatch's Energy Group, which designs and builds power facilities, Adam was stymied by the amount of hard-copy collateral his group had to provide not only for their own use during power plant construction but to satisfy federal regulators upon completion. There had to be some way, Adam thought, to collect all this data in a single information system of easy access to everyone who needed it. "I described the concept to the technical staff, who came back and said that what I wanted was a relational database," Adam recalls. "And I said yes, although I didn't know what the hell a relational database was."

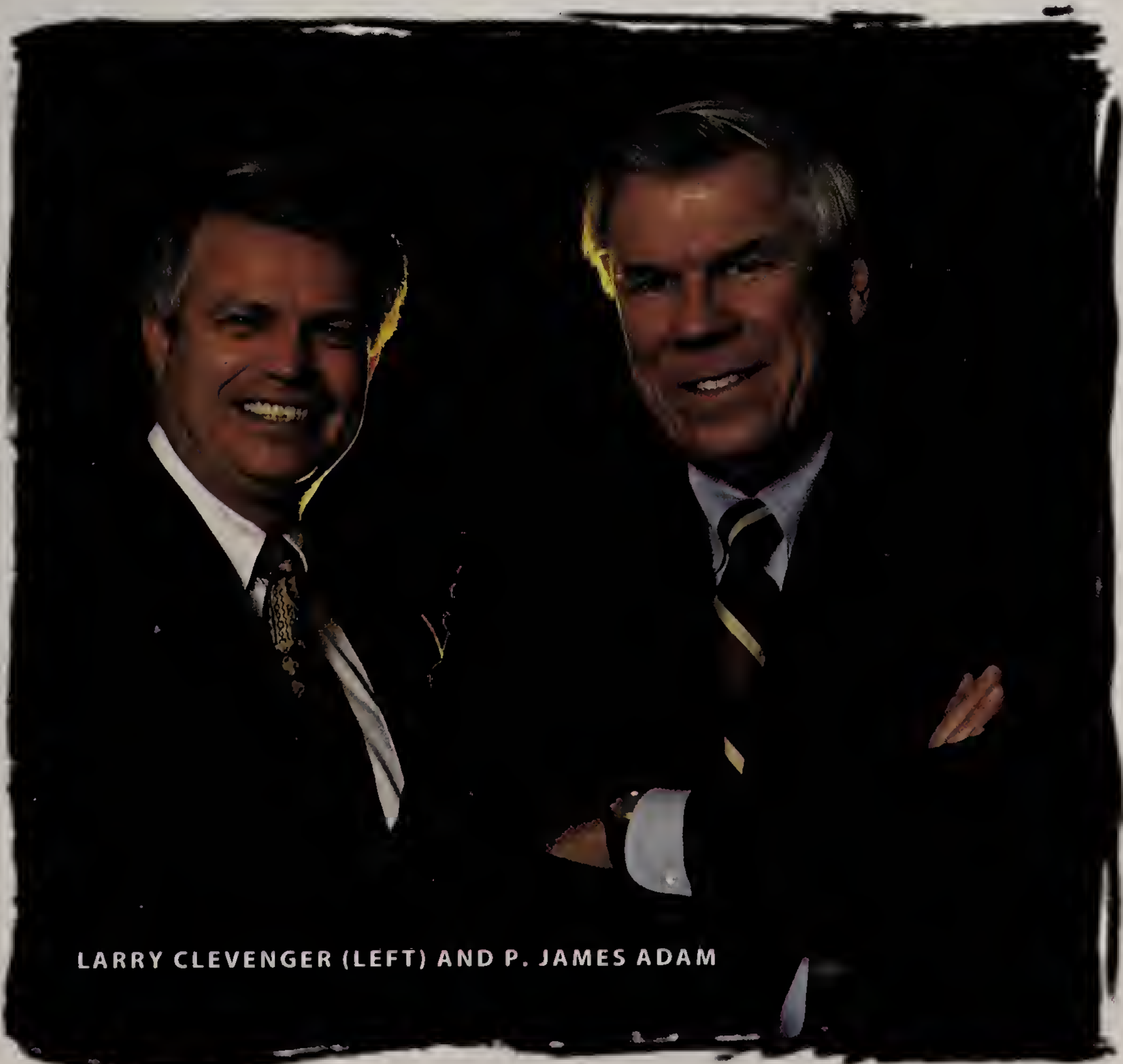
The IT group's first attempt at filling Adam's order was a failure—a result, says Black & Veatch CTO John Voeller, of the technical people trying to drive the project without enough user buy-in. Management still believed in Adam's original vision, though, and in 1982 launched a cross-functional project team. In 1983 the team returned with a system that met the specs. The system was Powrtrak.

Larry Clevenger, now IS manager of the Lungmen project in Taiwan, was one of the original Powrtrak developers. He remembers both the bitter disappointment of Powrtrak's initial false starts and the nervous enthusiasm he felt when presenting the first successful system in 1983. "I went to my manager and said, 'I'm betting my career on this system,'" Clevenger says. "He said, 'You're right.'"

It turns out Clevenger made a safe bet. Today, Powrtrak's data-centric philosophy is being introduced to all of B&V's business units. And although Powrtrak has evolved through four major versions to keep pace with emerging technologies, the system has remained true to its fundamental premise: Great benefits will come from storing all relevant project data in a central database. The original Powrtrak used a Britton-Lee database and Digital Equipment Corp. VAX minicomputers to run the applications, and for the most part dealt pure, raw data to users who simply needed to know what had to be built, where and when. Today, the fourth generation of Powrtrak (see "Anatomy of the System," Page 42) consists of a core database shared by eight separate information applications: project scheduling, 3D plant modeling, construction control, computer automated engineering, document management, engineering design, procurement control and project cost control.

JUDGE'S PERSPECTIVE

> "This is technology at the heart of the business—it wins new customers and runs the core activities of the firm."
>
> –**JOHN CROSS,** *head of IT, BP Group, The British Petroleum Co. PLC*



LARRY CLEVENGER (LEFT) AND P. JAMES ADAM

PHOTO BY MIKE McPHEETERS

Although computer-aided engineering (CAE) is an element of Powrtrak, the system is radically different from traditional computer-aided design (CAD) systems. CAD systems tend to keep drawings, schedules and other pertinent information in separate, segregated files, unavailable to multiple users simultaneously. But with Powrtrak, all of this data is stored in a central database and may be viewed in whatever form the user needs: document, drawing or 3D model. Through Powrtrak, project teams always have access to the most current version of a design or schedule.

Black & Veatch estimates it has invested nearly $15 million in Powrtrak since 1983, with a cumulative return of roughly $21 million over that same period. But beyond the numbers, Powrtrak's true ROI comes from these compelling advantages:

- **Time.** Ten years ago, power facilities commonly cost about $1,100 per kilowatt and took up to 60 months to design and build (unless they were nuclear power plants, which took much longer). In today's competitive world market, the average numbers are around $400 per kilowatt and 32 months. With Powrtrak, Black & Veatch completed a recent project in just 25 months.

- **Errors.** Construction projects traditionally are rife with errors, which can add up to several hundred thousand dollars in cost overruns. But with Powrtrak's automated processes, Black & Veatch estimates it has reduced overrun costs by $100,000 to $500,000 per project.
- **Extra Value.** By being able to determine exactly how long a project will take and how much it will cost, Black & Veatch not only can bid for jobs more aggressively, it can guarantee its orders from suppliers so that no party is stuck with too many or stranded with too few of an item. "What we design gets bought and built," Voeller says, noting a decided edge in engineering and construction.

Challenges

Even with management support and, eventually, user buy-in, Powrtrak met some resistance. Part of the problem was logistical: There simply weren't enough computers to go around. But once that problem was solved, the greater issue emerged: how to make users use their computers. "These were engineers and technical people, and they equated keyboards with secretarial work," Voeller says. At first, Powrtrak appealed only to Black & Veatch's younger, more computer-savvy engineers, Clevenger says, but it didn't take long before the system made a visible impact upon these users' projects. Then the older generation started to sign on. "We began to lose the 'This isn't the way to do business' attitude and gain more of 'This is the *only* way to do business,'" Clevenger says. "That's when the system's real benefits came to be seen."

Recently, Voeller conducted a work practices survey of the Energy Group, and even he was surprised by how much people have come to rely on Powrtrak. "I discovered that Powrtrak was so endemic," Voeller says, "that if you asked the user community, 'How do you work?' they really couldn't figure out how plants got built in the first place without Powrtrak."

Competitive Edge

Senior executives are quick to credit Powrtrak with enabling Black & Veatch's international growth. In the past seven years, Powrtrak has helped reduce construction costs by 50 percent and schedules by 60 percent, while growing the business from $120 million to $1.2 billion with only twice the number of people. The reason for the competitive edge is simple: "With Powrtrak, we can demonstrate that we have a unique way of doing business," says the Energy Group's Davidson.

ANATOMY OF THE SYSTEM

HARDWARE: Servers running Solaris, VMS and NT offer direct, remote and Web access. Clients use Microsoft Windows 3.1, 95 and NT interfaces. A single Oracle relational database is used for all information ranging from 2-D and 3-D models through scheduling, purchasing and field management.

SOFTWARE: Applications were built using C++. 3-D graphics currently use Evans and Sutherland's PHIGS but are being converted to VRML. Data models are developed using Sybase's S-Designer. All documents are managed through Documentum document management software. Web content is generated through Microsoft FrontPage and Macromedia Director.

NETWORK: Powrtrak is accessible worldwide via dedicated TCP/IP networks, remote dial-up and satellite links. Cisco equipment is used in the dedicated network, with various ISPs serving as Internet doorways for either Netscape Navigator or Microsoft Internet Explorer browsers.

Since day one, Powrtrak's developers have wondered when their competitors are going to come out with something like Powrtrak. So far, that hasn't happened. Adam says his rivals already have too much money tied up in CAD or other proprietary information systems. Voeller knows competitors who have tried to replicate Powrtrak but failed because they couldn't secure adequate user buy-in.

Looking ahead, Black & Veatch developers intend to infuse future Powrtrak versions with new 3D modeling systems that include virtual reality technology to make the applications almost game-like (a concession to the techno-savvy Gen X-ers joining the company, Voeller says). Similarly, voice-recognition technology is being tested for handheld devices to be used at remote construction sites. And beyond Powrtrak, Black & Veatch's strategists are looking for the next technological breakthrough to provide even greater advantage. "Powrtrak definitely has been strategic in giving us a competitive edge," says Adam, "but that doesn't mean it will forever. Things change rapidly; we can't afford to sit on our haunches."

DEFINING VALUE

Black & Veatch's Powrtrak information system integrates design and project management data in a single relational database that helps the company complete major construction projects faster, cheaper and with fewer errors than its competition. Since 1983, the company has invested nearly $15 million in Powrtrak, with a cumulative return of roughly $21 million over that same period.

Senior Writer Tom Field can be reached at tfield@cio.com.

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ENTERPRISE VALUE AWARD WINNER

Continental Shifts

Standardized low-end distribution technologies help Procter & Gamble penetrate global frontiers

BY RICHARD PASTORE

WOULD YOU GAMBLE YOUR SUCCESS in markets of more than 4 billion people on a system dependent on old 386 PCs and outdated software? Procter & Gamble did—and won big. The payoff was viability and leadership in emerging world markets. As an added bonus, P&G learned some lessons about speed, simplicity and dealing with parochial resistance.

The Cincinnati-based consumer products giant was awarded an Enterprise Value Award because of the way it uses a standardized set of processes and technologies known as Distributor Business Systems (DBS), consisting of ordering, shipping, billing, inventory management and financials enabled by off-the-shelf technologies. DBS has transformed P&G's shaky and inefficient overseas third-party distribution channels into a real competitive advantage in the emerging markets of Asia and Central and Eastern Europe.

In 1992, Procter & Gamble executives based in these remote outposts knew they couldn't meet their corporate growth mandate with the existing distribution infrastructure. Unlike in the United States, where P&G enjoys the efficiencies of direct sales and continuous replenishment systems with giant retailers like Wal-Mart Stores Inc., more than half of P&G's Asian business was handled by 1,500 third-party distributors, many of them tiny family-run shops processing orders, billing and inventory manually. With no distribution data trail, P&G watched its sales information about shampoos and detergents disappear into the Asian equivalent of the Bermuda Triangle. "We lost touch with our products as they went to the distributors," says Stephen Goodroe, vice president of global customer marketing for P&G worldwide. How were products selling? How frequently were products out of stock? What were the distributors and stores doing with pricing? P&G had no answers and a slim chance of increasing reach and improving distribution productivity without them.

The situation in former Iron Curtain countries of Europe posed a similar problem. Products were sucked into a black hole of 78,000 wholesalers, and very little sales information to help P&G improve its business escaped that gravitational pull. "The reliability of supply dropped exponentially through each step of the distribution system. By the time products got to the shelf, we had virtually no control over the supply or pricing accuracy," says Robert L. Fregolle Jr., vice president of customer business development and customer marketing in Europe. "That was not going to be a winning strategy versus our competitors."

FRONT ROW: WAYNE MATTHAI (LEFT), TODD GARRETT AND MIKE MILLIGAN
BACK ROW: STEPHEN GOODROE (LEFT), GARY BREISSINGER AND GEOFFREY SMITH

PHOTO BY JIM CALLAWAY

Simple Solutions

Working independently of each other, P&G's Asian and European units each made the same choice: to move to a small number of regional distributors exclusive to P&G and help them become more productive, computerized businesses. That, in turn, would expand P&G's reach in the region, ensure a strong, loyal distribution network and recover the product data vital for improving business. The ultimate goal for each region was an efficient distributor response model similar to the elegant continuous replenishment systems P&G has crafted within North America.

Choosing that course was not a hard decision; there were no viable alternatives. To take over the distribution chores itself and service the 400,000 retail outlets in Asia alone, P&G would have had to triple its direct sales force, which would have cost about twice as much as the third-party distributor model. Another unacceptable alternative was to leave development of DBS-type systems up to each country within the regions, abandoning any chance of regionwide compatibility and efficient distributor response.

"Simplicity" became the watchword for DBS development. "We wanted something that wasn't too sophisticated, didn't cost a lot, was reapplicable, shrink-wrapped and bullet-hardened," says Wayne Matthai, vice president of management systems worldwide. A longtime P&G employee, Matthai says simple systems rarely stay that way; instead they mushroom into giant, overly complex concepts that cause difficulties for everyone. "That would have overwhelmed the distributors and overwhelmed us with support problems," he says.

Accordingly, P&G in Asia and Central and Eastern Europe chose a DOS-based ordering, shipping and billing package from Platinum that would run on 386-based PCs. But the two regions didn't choose the software together; in fact, divergent needs set them on different paths and timetables.

While P&G in Asia focused on reengineering ordering, shipping and billing for its established distributors, in Central and Eastern Europe the company needed to

JUDGE'S PERSPECTIVE

> "This is not bleeding-edge technology, it's tried-and-true mainstream technology used to gain tremendous reach into new markets."
>
> –**CHRISTOPHER HOENIG**, *director, Information Management and Technology Division, U.S. General Accounting Office*

DEFINING VALUE

Procter & Gamble distributor business systems (DBS) increased the efficiency of third-party distributors and allows P&G greater control over product in the developing markets of Asia and Central and Eastern Europe. The standardized regional systems have led to a competitive edge in these markets, and the company now plans to apply DBS globally. P&G invested $29 million in DBS for Central and Eastern Europe, with a net ROI of $100 million. In Asia, the company invested $10 million and realized a net profit of $120.5 million along with a 22 percent improvement in order fulfillment and reduction in inventory interest expenses. In both markets, pricing and product specs are now accurate and automatically updated daily to the point where efficient distributor replenishment is now possible.

create and nurture viable distributors where none existed. P&G had abandoned its 7,800 wholesalers for 100 neophyte regional distributors before the project started and had to instruct these new companies in business fundamentals. A distributor's CEO may have been a gym teacher or ship's captain under the Communist regime just two years before. Therefore, Fregolle and IS project leader Wojtek Niedziolka focused first on basic financial systems, using locally developed accounting software for the fledgling distributors, and later deployed the Platinum package.

In addition, P&G Europe developed a handheld computer system for the "van selling" model popular in Central and Eastern Europe—in which distributor-operated vehicles drive store to store and sell inventory right from the backs of vans. Instead of forcing drivers to complete lengthy manual forms, daily sales data collected by the handheld computer is uploaded to the Platinum software modules nightly. Today 2,000 van drivers using the time-saving system have doubled the number of retailer calls they make in a given day, realizing an incremental sales increase of $125 million for P&G over the last four years.

Support Fears

To make certain all parties had a stake in the DBS game, P&G brokered a deal with the distributors: They would pony up for the PCs and provide the employees to operate the system; P&G would take care of the software, including local customization for language and government-mandated financial reporting, as well as installation, training and support.

But would P&G be able to support DBS, particularly in Asia, where it would eventually be installed in more than 300 sites across the world's largest continent? That question worried Asia project leaders Geoffrey A. Smith and Joe Nealon. "If it became a support nightmare, it would consume all of IS's resources," says Smith, director of worldwide management systems. Not a good prospect, considering that IS was also burdened with a simultaneous rollout of SAP software worldwide.

Luckily, DBS proved simple to implement and support. In Asia, a 12-person multifunctional, multinational "center of expertise" (COE) team, working with the local P&G sales organizations, took care of installation. The equivalent of five full-time members of this team handle third-level support calls for the entire region. (Distributors' staff and P&G's country-based IS staff handle first- and second-level support calls, respectively. If these two groups can't solve the problem, it becomes a third-level call and is routed to the COE.)

Another factor that eased support worries was P&G's insistence on "milking" the same software version for as long as possible, Smith says. With DBS, there would be none of the continuos upgrading that frustrates so many CIOs. The original Platinum DOS package would have to suffice for three or four years.

The critical success factors—and greatest hurdles—for both the Asian and European DBS projects were standardization and speed. The company needed to face down resistance and foot-dragging from some third-party distributors and its own country managers.

"If we were to meet our goals, we had to have one transparent system," says L.D. (Mike) Milligan, senior vice president. A 37-year P&G veteran, Milligan had heard the "uniqueness" mantra a million times—that each country has distinct needs and that a one-size-fits-all approach is a mistake. But he dismissed those arguments for DBS. "When you come down to it," he says, "things like cash flow and inventory are spelled the same everywhere."

Speed was also critical. In emerging markets, where many stores carry only one brand of a product, being first to secure the spot on the shelf and the mind-share of the consumer means everything. And the window of opportunity was narrow. "The Berlin Wall doesn't fall twice. The key was getting in quickly," says P&G CIO and Senior Vice President Todd Garrett.

Once the model for reengineering internal distributor operations and deploying DBS was established, P&G was exceptionally quick in getting distributors up and running. In Asia, the 12-person COE team, made up in part of recent local college graduates, spent one to two months reengineering and automating a given distributor's business operations. In Europe, the average setup took three months. According to observers in and outside P&G, the quick turnarounds were surprising. "Having done reengineering, I know how tough it is," says Virginia Reck, senior partner at the Kendall Consulting Group in North Andover, Mass., who evaluated P&G's award application. "Also, they are using young folks out of college. That's against the norm in reengineering, where you want people with experience who can provide sensitivity and handholding."

Resistance Is Futile

P&G did lose a few big distributors in Asia who balked at replacing their systems with DBS, but the company diffused most resistance by explaining the payoff in terms of distributors' own financial viability and productivity and faster growth in sales and profits. Then P&G validated those claims with pilots that chalked up substantial improvements in as little as two months. In fact, distributors using DBS have doubled their growth rates and as a group slashed tens of millions of dollars in costs.

ANATOMY OF THE SYSTEM

HARDWARE

Asia: Distributor-owned 386-based PCs running DOS.

Europe: 386 or better PCs and Norand handheld scanning computers.

SOFTWARE

Asia & Europe: Platinum DOS-based order, shipping and billing package.

Europe: Custom-developed financials and interfaces to handheld devices.

ARCHITECTURE

Asia & Europe: Individual local area networks averaging four nodes each.

Global: MCI worldwide network.

P&G's own country managers were another problem. Some Asian countries' localized IS groups were already developing their own distribution systems and resented the imposition of the regional effort. "In the Philippines, we were testing software locally and felt we were delaying its rollout because we had to wait for the region to get its act together," says Oca Sañez, at the time sales manager for the Philippines and now director of worldwide customer business systems. "That created some negative emotions."

In a politically astute move, P&G located the Asian COE in the Philippines and tapped local veterans like Sañez for the team, as well as locally recruited college grads. (The Eastern European division located its COE team in Poland.) P&G also made sure the first pilots took place in countries that had local projects supplanted by the regional effort. This way, the company minimized the locals' frustration while taking advantage of their momentum and experience.

Even so, Goodroe saw some of his Asian country managers dragging their heels. "We had problems with the rollout in some countries, and I trace that back to lack of support or ownership by the senior people—the general manager or sales manager of each country," Goodroe says. "The tack I took was to encourage first and then insist. I'd push and push in a country, and if they still didn't get going, I'd push somewhere else and achieve a success there that I could show to the others."

In Europe the pushing wasn't as necessary, since the new distributors were glad for any help they could get. But complete standardization proved impossible to achieve because of different financial reporting laws for each country. P&G gave up on a standardized definition of costs, separated the accounting portion from the rest of financials and customized accounting on a country-by-country basis.

JUDGE'S PERSPECTIVE

> "They made the complexity of the infrastructure transparent to the end user."
>
> —**ALANA WARD-ROBINSON**, *CIO & vice president, Sara Lee Hosiery*

Going Global

P&G's return on investment in Asia and Europe with DBS was worth the bother and the relatively low combined investment of $39 million (see "Defining Value," Page 46). The bottom line: P&G has used DBS to increase Eastern and Central European sales from virtually nothing to $1 billion in four years, and Asian sales from $3 billion to $4 billion in three years. Without DBS, P&G "would not have the leadership shares we now have" in countries like China and Poland, Milligan says. P&G products "would not be in stock in these areas that are virtually unreachable by our competitors." And the Bermuda Triangle and black hole are no more; thanks to the data trail, country managers and regional execs know what product is selling, where and for how much.

Given the results, it's understandable that P&G is now kicking itself for not making DBS a true global system sooner. Only last spring did it create a global center of expertise, chartered with merging the best of Asia and Europe's separately developed DBSs into a standardized global system it can apply in any emerging market from India to Latin America to Africa. The multifunctional global COE, including Smith from the IT side and the Philippines' Sañez from the sales side, is adding new elements like decision support and forecasting capabilities. It is also upgrading to the Windows version of Platinum and making its own additions to this software. Data will travel across P&G's global MCI and local telco networks instead of the current sneaker net; uploading data to a corporate host regional data warehouse is now under pilot in Poland.

Ultimately the hope is that global DBS, dubbed Integrated Distributor Systems 2000, will enable efficient consumer response and a P&G competitive advantage in all developing regions of the world. CIO

Executive Editor Richard Pastore can be reached at pastore@cio.com.

ENTERPRISE VALUE AWARD WINNER

New World Orders

To compete in an industry known for low profit margins, computer distributor Tech Data dove into electronic commerce with a sales application that uses both the Web and CDs to transform the way it sells

BY TOM FIELD

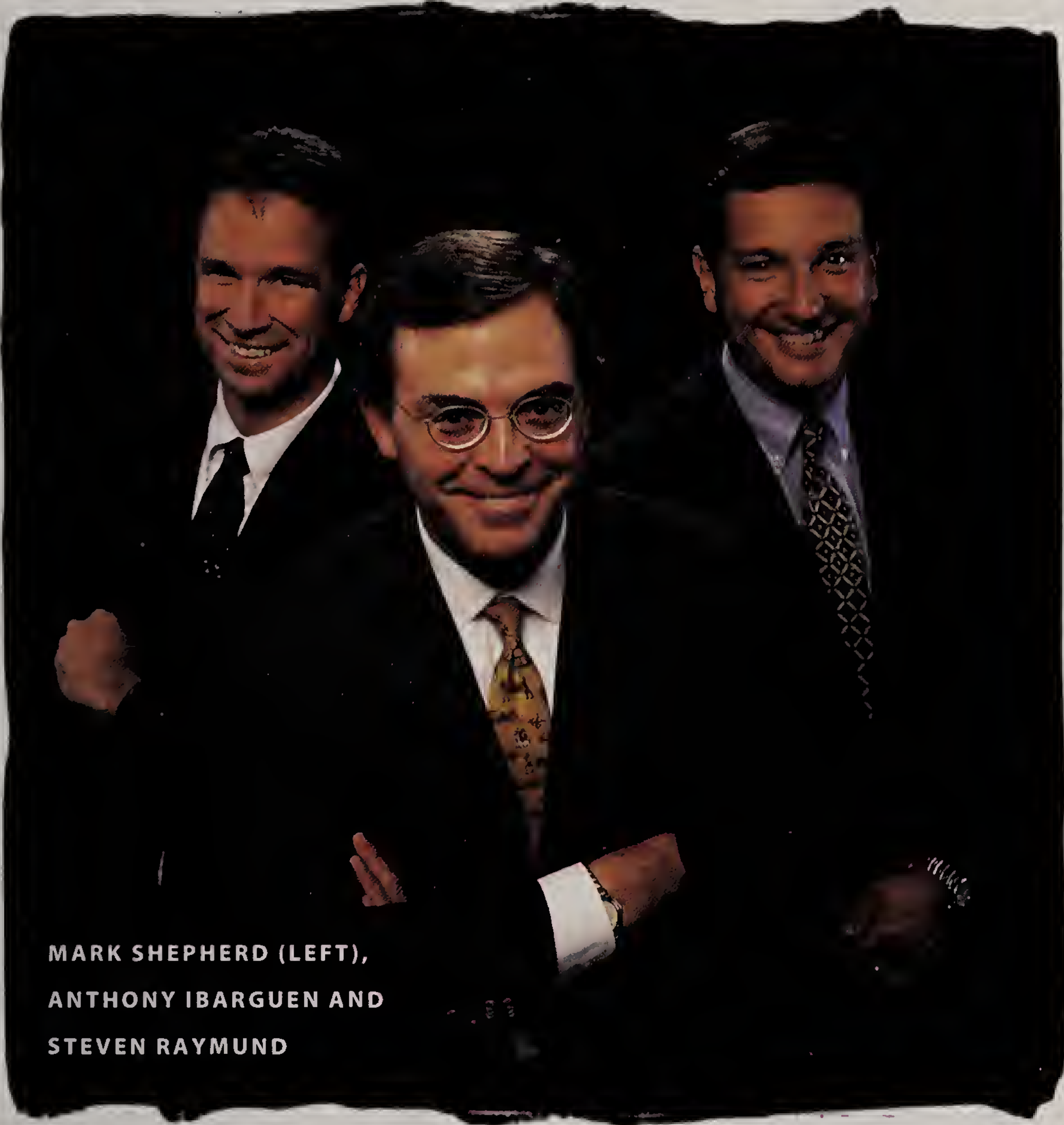
TALK ABOUT A TRANSFORMATION. WHEN Steven Raymund joined the family business in 1981, Tech Data Corp., which sold office and computer products out of a small warehouse in Clearwater, Fla., employed about a dozen people. In the mid '80s, the company switched strategies, went public as a full-line national distributor of PC products and ignited a decade of tremendous growth. Today, Tech Data is a $4.6 billion Fortune 500 company serving 55,000 value-added resellers and retail dealers with more than 45,000 products from 900 manufacturers—second only to Ingram Micro in the computer products distribution business. Raymund is CEO, overseeing 2,700 employees at Tech Data's sprawling Clearwater campus.

But it's not just the size of the business that's changed under Raymund's watch; it's the way Tech Data does business. Prior to 1995, Tech Data was primarily a catalog operation. Customers would leaf through the voluminous product catalogs, find what they needed and then telephone Tech Data's salespeople, who bore the responsibility of placing orders, tracking shipments and configuring products by price, availability and compatibility. It was a cumbersome process, but in those days that was the way business was done.

Those days ended in 1995, with the introduction of Tech Data InterAct, a suite of electronic commerce software that put transactional information in the customers' hands. Now, without salesperson assistance, customers can serve themselves, using Tech Data Interactive's multimedia tools, which include

- **TD on CD:** a CD-ROM catalog that provides product and service information, including technical specifications, through an intuitive Windows interface.
- **TD On-line:** a client/server-based application that offers product searches, pricing, availability, order entry and inquiry options to preferred customers.
- **TD Web:** Tech Data's Web site (*www.techdata.com*) offers the same features as TD On-line, as well as password-protected access to Tech Data's electronic catalog, an index of manufacturers' Web sites and an order-tracking feature that includes direct links to the UPS and FedEx Web sites.

In awarding Tech Data a 1998 Enterprise Value Award, judges were impressed by the company's innovation, creating a flexible system that brings electronic commerce to customers of varying levels of technical sophistication. But judges also noted how the system has



MARK SHEPHERD (LEFT), ANTHONY IBARGUEN AND STEVEN RAYMUND

PHOTO BY JEFFREY CAMP

improved its productivity and profits. Since InterAct's rollout, Tech Data's electronically originated order volume has risen from 0 to 50 percent of its sales, and overall sales are up 45 percent. At the same time, Tech Data's sales force has grown only 6 percent. As a result, in an industry where profit margins are thin, Tech Data has reduced its selling, general and administrative expenses from 6 percent in 1995 to a new company record low of 4 percent in the third quarter of 1997.

"The transformation of our company has been nothing short of revolutionary," says Raymund, who sees electronic commerce as the new battleground for Tech Data and its competitors. "It's an arms race, and from day to day the leadership probably changes hands," Raymund says. "But clearly, at this point, electronic commerce is not an option; it's a necessity."

Internal Disaster, External Pressure

The implementation of the InterAct suite didn't exactly result from a harmonic convergence. Instead it was the combination of an internal disaster and external market pressure that spurred Tech Data's electronic investment. The disaster was a $29 million mainframe computer upgrade that crashed on takeoff in 1994, threatening Tech Data's stock value and sales. It was while recovering from this crisis that Tech Data began feeling the external threat of competitors such as Ingram Micro, which had already blazed significant trails in electronic commerce.

JUDGE'S PERSPECTIVE

> "This is a very smart integration of the supply chain affecting all the customer points."
>
> –**JOHN CROSS,** *head of IT, BP Group, The British Petroleum Co. PLC*

Beginning in early 1995, Tech Data put together an electronic commerce development team, comprising business and IT representatives from throughout the company. Upfront, this team identified Tech Data's internal needs—chief among them a new back-office system that would interact seamlessly with the new front-office initiatives. Members also surveyed customer needs and competitors' current solutions. "The approach wasn't, 'Let's meet what the competition has now,'" says Mark Shepherd, an IS director in the EC development group. "It was, 'Let's meet the customers' demand and top what the competition is doing.'"

Upon inspection, Tech Data found that while some of its competitors were making electronic commerce inroads, they weren't building any superhighways because their EDI transactions were slow. This became Tech Data's challenge: to build an architecture to support a real-time electronic transaction system. "Our goal was to be able to deliver what we said, when we said," Shepherd says. "But we found there was a reason why our competition wasn't doing this well: It's tough to do."

Technically, beyond building a scalable architecture, InterAct's creation wasn't a huge challenge. The company didn't invent any of the technology; rather, it assembled InterAct from PC-compatible components widely embraced in the marketplace, which were primarily Microsoft products. This strategy made InterAct an easy fit with the computer systems of both Tech Data and its customers.

The development team's real stumbling block was selling InterAct to users, both internal and external. Within Tech Data, salespeople saw InterAct as career-threatening. "There was a fear among salespeople that we would automate them out of their jobs," says Anthony A. Ibarguen, Tech Data's president and COO, describing the initial panic that shook the sales organization when InterAct was introduced.

But what salespeople soon found, Ibarguen says, is that InterAct helped them sell more. Once customers started to assume order-placement responsibilities, salespeople found time to concentrate on more proactive selling. Instead of just answering the phone and taking orders, which were their primary tasks before InterAct, salespeople found they could actually call customers and talk about overstocks and promotions. "Rather than eliminate their jobs, we've actually enhanced them," Ibarguen says. And not only have no salespeople been fired, more have been hired—though admittedly fewer than would have been hired without InterAct.

DEFINING VALUE

Tech Data InterAct is a suite of electronic commerce systems with which the computer products distributor has expanded its annual sales by 45 percent and improved customer service immeasurably while increasing sales staff by only 6 percent. Since 1995, Tech Data executives estimate they've spent roughly $16 million on InterAct and have seen a return of $41 million, which accounts for enhanced revenue, productivity increases and reduced operating costs.

With external users, the primary issue was training. Particularly with TD On-line, which is offered to about 24,000 of Tech Data's preferred customers, Tech Data had to devote personnel not just to staff a help desk, but in some cases even to go onsite and help users learn how to install and use InterAct. Today, with 800 to 1,000 new online account requests per month, Tech Data regularly offers user training at its own facilities throughout North America, and technicians will travel to customer sites if necessary. To continue to attract customers, Tech Data not only gives away its CD and InterAct online software, it also waives shipping and handling fees for customers who use the system—a big incentive for some frequent shoppers.

Real ROI

Since 1995, Tech Data executives estimate they've spent roughly $16 million on InterAct and have seen a return of $41 million, which accounts for enhanced revenue, productivity increases and reduced operating costs. But the real ROI is in furthering Tech Data's "entanglement" strategy, making customers utterly dependent on Tech Data's services. One InterAct feature offered on all of the products, SourceMaster, even taps into competitive data so that customers can compare product prices and availability between Tech Data and its rivals. And then there is Private Label Delivery, available via TD On-line, which allows customers to drop-ship products directly to their own end users with customized shipping documents—all done by Tech Data but made to look like the customers' handiwork.

ANATOMY OF THE SYSTEM

HARDWARE: Tech Data's corporate computing environment consists of both mainframes and PCs running client/server-based applications. An IBM ES/9000 mainframe runs MVS; Compaq servers run Microsoft Corp. NT and Novell Inc. NetWare. Internally, clients include 2,000 desktop PCs (mainly 486- and Pentium-based systems) and IBM 3745 terminals.

SOFTWARE: The PCs run the Microsoft Office suite of applications, including Windows, Word, Excel, PowerPoint, Access, MS-Mail and Schedule+. The mainframe platform uses CICS, DB2, Advantis Data Interchange and Andersen Consulting's Distribution Control System/Logistics.

NETWORK: The system is networked using both SNA and TCP/IP.

So far, InterAct is proving to be a differentiator. Joan Rosenberg, owner of Island Computer, a reseller located on Pine Island, near Fort Myers, Fla., recently e-mailed Tech Data to express her enthusiasm for the InterAct suite. "Because I am no longer paying a handling fee or shipping, TD is the first place I look for parts," Rosenberg wrote.

Robin Reid, director of operations at Greenpages, a Kittery, Maine-based reseller, says InterAct is much easier to use than rival systems. "It's very user-friendly; it has a different look and feel" than the system of one of Tech Data's chief rivals, says Reid, whose sales force has used TD On-line since its inception.

Tech Data's Ibarguen naturally concurs. "InterAct has changed our business profoundly and forever," he says. "Our entire business process now is built around a series of linked events, with electronic commerce as a significant link. [InterAct] is putting us in better touch with our customers, helping us learn more about their businesses."

Although he shares Raymund's view that electronic commerce is an ongoing arms race, Ibarguen believes InterAct gives Tech Data a decided edge, at least for now. To maintain that advantage, he says, Tech Data must continue to expand InterAct to offer more services and reach more customers. While some rivals are struggling to create effective connections to customers, for instance, Tech Data now is exploring ways to expand InterAct to serve product manufacturers. "With [competitors], electronic commerce is more of a decoration on a tree; a marketing device. Some, even today, don't foresee electronic commerce becoming a relevant part of their business," Ibarguen says. "I think they may be changing their tune."

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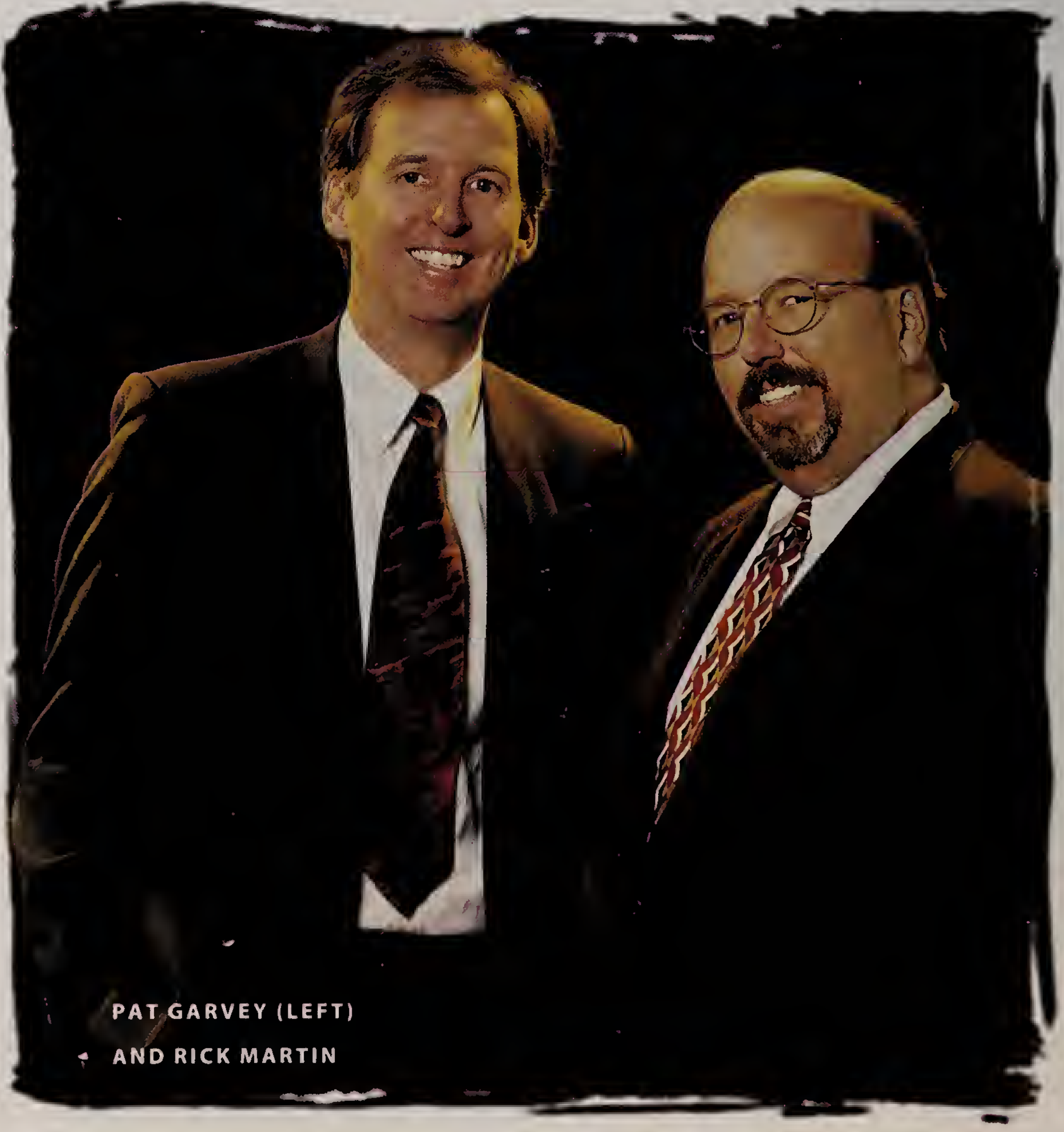
ENTERPRISE VALUE AWARD WINNER

A Civilian Action

The EPA's Web-accessible databases keep citizens well informed about sources of pollution in their communities. The public can then demand polluters clean up their acts.

BY PETER FABRIS



PAT GARVEY (LEFT) AND RICK MARTIN

PHOTO BY KATHERINE LAMBERT

IN THE SHADOW OF THE WASHINGTON Monument during Earth Day activities on April 22, 1995, dozens of environmentally minded citizens were able to peer into a virtual vault of pollution data belonging to the U. S. Environmental Protection Agency (EPA) in Washington, D.C., for the first time. Many onlookers were taken aback by how many factories, government facilities and process wastewater treatment plants were releasing toxic chemicals into the air, water and ground. Few who logged on to the PC set up on the National Mall that day realized that the agency is responsible for monitoring more than 700,000 sites, including businesses in their own neighborhoods. That public debut of the EPA's Web-based Envirofacts Warehouse marked a new era for public access to environmental data.

"It causes quite a stir even today when we demonstrate the system to the uninitiated," says Rick Martin, director of the Enterprise Information Management Division in the EPA's office of information resources management. "People are surprised to see their local dry cleaners on the database." But that's the whole point of the EPA's Envirofacts Warehouse *(earth1.epa.gov/enviro/html/ef_home.html)*. One of the agency's main missions, in fact, is to increase awareness of the impact of pollution on the environment and public health among community leaders, journalists, local activists, average citizens and businesses. Greater community awareness will encourage and prod polluters to become more environmentally responsible. At least that's the intent.

Envirofacts maps the 700,000 sites that handle potentially dangerous chemicals and identifies their harmful substances. Users can access information on the sites by name, address or ZIP code. Before Envirofacts, that data was difficult to obtain even for EPA workers. The information was locked tightly in seven unconnected databases on an IBM mainframe. "You had to be a registered user, and only a small fraction of agency employees had access to the data," says Pat Garvey, director of the Envirofacts Warehouse team in the office of information resources management.

Even then, registered users sometimes had difficulty making sense of the data. Because of the way environmental legislation evolved—separate acts for air and water pollution control, hazardous waste handling and cleanup—each pollution law spawned its own EPA division with its own database. Each division designed and built systems on its own using different technologies. So if a citizen requested information on sources of pollution in his community, EPA workers had to run reports from several databases. Each of those systems was clunky and user-hostile. They often yielded irrelevant information.

"The paper reports presented data in an unnatural way that defied easy comprehension," says Jeff Byron, director of information technology for the EPA's One Stop Reporting Program, a two-year-old effort to reinvent environmental reporting by providing access to environmental data. Before the introduction of a unified database, there was no way to pinpoint polluters' locations, so it took a keen eye to interpret the numerical data and give citizens answers in plain English. By contrast, Envirofacts opens these databases to anyone with a Web browser and presents information in a more easily comprehensible format. "The greatest thing about Envirofacts is that it provides the taxpayers with their data," Martin says. "They now can find out pretty much what we know about their communities."

JUDGE'S PERSPECTIVE

> "This is an early use of the right technology for the right purpose—with enormous impact and leverage through the number of users involved."
>
> –**ROB COHEN**, *CIO, Astra Merck Inc.*

With Envirofacts, the EPA became a pioneer among federal agencies in leveraging Web technology for public information access. The EPA consists of divisions devoted to enforcing various pollution laws such as the Clean Water Act and the Clean Air Act. In the past, the agency's divisions had little to do with one another. "I started out in the hazardous waste area and never met anyone in the water program during my first five years with the EPA," Garvey says.

Within the EPA itself, Envirofacts yields cost savings, increases productivity and makes it easier for the agency to fulfill a new mission: reducing pollution on a regional level. IS chose the Web as the common interface to the agency's databases in the Web's early days when Mosaic was the dominant browser. That's cutting-edge technology adoption—something for which government agencies are not renowned. Neither are they known for customer empowerment, but the Envirofacts project delivered both and thus earned the EPA an Enterprise Value Award.

Envirofacts users are a diverse group with widely different agendas. Dennis J. Oliver, an environmental reporter with ANG Newspapers in Oakland, Calif., used Envirofacts to research a story that cited a 31 percent increase in the release of carcinogenic chemical emissions in the San Francisco Bay area from 1994 to 1995. Oliver says Envirofacts has some limitations: The data isn't always up-to-date and doesn't explicitly tell users about the health risks in a given region. "But it is a great place to go if you want a general idea about emissions levels in your area," he says.

Jeff Zimmerman, a Washington, D.C.-based environmental lawyer with the firm

Foley & Lardner, uses Envirofacts at least once a week to keep tabs on clients and potential clients. "I can look up a metal fabricating plant and find out what kinds of solvents they use and what kinds of permitting and compliance issues they face," Zimmerman says. Companies considering using his firm's services are amazed that he knows so much about them during initial meetings. That knowledge has helped Zimmerman win several accounts. Envirofacts comes in handy during preliminary litigation research, too, he adds.

Most corporations aren't thrilled that their environmental dirty laundry is posted on the Web for all to see, yet amazingly some have established links to their own Web sites from Envirofacts. The idea is to give themselves a public forum to explain their pollution control efforts and tout their successes in reducing pollution levels, according to Garvey. CEOs take their pollution compliance records very seriously. "It's bad PR to be on a list of the 10 biggest polluters," Garvey says.

ANATOMY OF THE SYSTEM

HARDWARE: Envirofacts uses a Unix-based Digital Equipment Corp. Alpha server for the Warehouse platform and IBM Corp.'s ES/9000 for the data extraction from the national EPA program legacy systems.

SOFTWARE: Oracle Corp.'s 7.3 Oracle Web Server V2.1 supports the Envirofacts Warehouse and provides Web-based access to the database using PL/SQL procedures. A Netscape Communications Corp. Enterprise server hosts the EPA and Envirofacts Web sites. Extraction of the data from the mainframe systems is done with code in Natural, Focus, and Platinum Technology Inc.'s Reporting Facility. The files are processed using SAS and prepared for loading into Oracle.

NETWORK: The internal network comprises both Ethernet and Token Ring segments with Cisco Systems Inc. routers and Novell Inc. software. User access is through a Web browser over the Internet. Direct access (login) to the database is also provided for advanced users requiring SQLNet on the client computer.

The EPA changed its strategy in the 1990s and began to take a holistic view of pollution in geographic areas with an emphasis on working with companies to reduce pollution. The agency now examines pollution from all sources, such as smokestacks or wastewater treatment plants, that affect a given region. That means personnel from the various divisions have to share data. Envirofacts provides the vehicle for doing so. The system makes it possible for, say, water specialists using a Web browser on their desktops to analyze how a Superfund municipal dump might be contributing to the pollution of a river. (Superfund sites are specifically designated as high-priority and earmarked to receive government cleanup funds.) That's a lot more efficient than in the past when specialists had to request hard copy reports from the mainframe that could take days to be fulfilled.

DEFINING VALUE

The EPA's Envirofacts Warehouse, costing an estimated $24 million over five years, allows anyone with a Web browser to access detailed environmental pollution data. Public awareness of environmental issues can pressure polluters to reduce the release of chemicals into the environment. The system received 300,000 hits per month as of November 1997, up from 125,000 hits in January 1997, and it fulfills 500 map requests per week. Within the EPA, the system provides a common interface for essential, previously unconnected database systems and increases productivity. The agency predicts its total ROI from 1996 to 2000 will be between $39 million and $49 million.

Envirofacts saves money for the agency by reducing the number of requests for information from the citizens invoking the Freedom of Information Act (FOIA). Interested parties can now get EPA information instantly on the Web. Previously, most obtained EPA data by submitting formal FOIA requests. Fulfilling those requests takes about 30 days and is a bureaucratic nightmare for the agency. FOIA requests have dropped by approximately 20 percent since Envirofacts went online, according to Garvey, resulting in a savings of more than $9 million in labor costs over five years. By providing an inexpensive common architecture linking seven formerly disparate systems, the EPA could save an additional $30 million to $40 million a year by 2001 on hardware, licensing and systems programming.

Envirofacts' most meaningful ROI, however, is much more profound. The agency believes increased public awareness about pollution's impact will lead to pressure on polluters to clean up their acts. That will prevent health tragedies like Love Canal, the toxic waste site that caused a host of health problems among residents in a Niagara Falls, N.Y., neighborhood. "Some Superfund sites cost over $1 billion to clean up," Garvey says. "If we can prevent a site from becoming a Superfund site, we can reap great savings and improve public health."

Staff Writer Peter Fabris can be reached at pfabris@cio.com.

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ENTERPRISE VALUE AWARD WINNER

Survival of the Fastest

Facing a competitive threat from upstart rivals, State Street Global Advisors had to build a new customer service system for retirement plan transactions–and do it quickly

BY PETER FABRIS

NERVOUS INVESTORS INUNDATED STATE Street Global Advisors' (SSGA) call center on Oct. 27 with anxious inquiries about their 401(k) plans. The Dow Jones Industrial Average had plunged 554 points that day, prompting a record 70,000 phone calls to SSGA's customer service center from many of its Fortune 500 clients. They were worried that their retirement nest eggs had cracked after the market's fall. SSGA, which manages retirement plans for about 2 million employees of 120 corporations, was able to reallocate assets from stock funds to safer bond and money market accounts for those bearish investors who wanted to bail out of the free-falling stock market.

By contrast, when the Dow last fell so precipitously in October 1987, most 401(k) investors were powerless to take action. A decade ago, caretakers of corporate retirement investment plans—a business then dominated by insurance companies and banks—didn't have the technology to enable investors to make a quick dash from volatile stocks to the more secure embrace of fixed return assets. If an investor wanted to reallocate that precious retirement kitty in 1987, it could have taken as long as six weeks. Since then, the industry standard for the time it takes to complete retirement plan reallocations, take out loans and perform other transactions has shrunk to 24 hours. And aggressive mutual fund companies bent on capturing the retirement plan management business are driving customer service standards even higher.

SSGA recognized in the early '90s that it would have to reduce its transaction times in order to be a major player in the marketplace. The only means to that end was to build a new customer service center system. But even as SSGA began designing the system, the market for retirement plan management was exploding. SSGA had to act fast or risk losing market share to newcomers. The

JIM PHALEN (LEFT)
AND JOHN FIORE

PHOTO BY WEBB CHAPPELL

company spent $15 million over five years on a client/server workflow customer service system. Although SSGA wasn't the first company in its industry to deploy this kind of system, it got the job done fast—and did it well. So well, in fact, that SSGA moved from 10th place in the market (measured in total assets and number of participants) in 1993 to third today, an accomplishment that would have been impossible without this system. Timely deployment, effective implementation and an enormous business impact add up to a system worthy of an Enterprise Value Award.

SSGA's business strategy hinges on its ability to act as an extension of its clients' benefits departments. Retirement plans are key elements in benefits packages offered by Fortune 500 companies to attract top-notch employees. "World-class companies want to offer world-class 401(k) plans to their employees," says Jim Phalen, an executive vice president in SSGA's investment management group. The customer service center is central to attracting and keeping clients. When companies evaluate SSGA against other providers vying for their business, they tour the customer service center and inspect the system. Whether SSGA wins a company's business depends on its ability to respond to clients' needs rapidly with minimal phone on-hold time and with a rate of transaction errors near zero.

Those customer service aspirations required a quantum leap in technology. Before the SSGA's customer service center went online, representatives completed transactions with paper forms. The rep entered the data from the forms into a mainframe once a day in a slow, awkward process that required representatives to route forms via internal snail mail, often to other buildings. Correcting errors meant flipping through filing cabinets to find the right slips, then sometimes sending them to several administrators for approval.

In the age of paper forms, SSGA revalued portfolios once a month, as was customary in the industry. That meant that when investors wanted to reallocate their 401(k) money, take out a loan against their assets or redeem mutual fund shares, SSGA would wait until the first of a new month to perform the transaction. The stock market has a habit of rising and falling daily, but investors had no hope of responding rapidly to Dow Jones roller coaster rides. Today, SSGA's customer service center system revalues assets daily and allows representatives to complete transactions in less than 24 hours.

Abby Stone, a senior customer service representative at SSGA, remembers—not fondly—having to do the paper shuffle every day. Stone used to put customers on hold frequently while she looked up information in three-ring binders or made calculations on scratch pads. Now the system performs scads of calculations automatically. Nearly all the necessary information is easily accessible online,

JUDGE'S PERSPECTIVE

> "Give State Street big credit for learning from others and making good use of that learning."
>
> –**ROB COHEN**, *CIO, Astra Merck Inc.*

including the rules of each plan, which vary from company to company. Stone doesn't have to put callers on hold very often and works more efficiently. That's because the system won't allow customer service representatives to perform a transaction contrary to a plan's rules. For instance, if a participant wants to take out a loan against his 401(k) plan, the system would automatically inform Stone if the participant were ineligible for that transaction. A sophisticated help function is tailored for each individual plan. "This is an awesome system," Stone says. "Before, you had to know every plan inside and out. Now my calls are quicker, and I'm less worried about making a mistake."

Customer service reps can also perform transactions more accurately—99.8 percent of the time, says Gregory J. Sexton, vice president of customer service. That's up from about 85 percent before the system went online. And because representatives no longer have to memorize the nuances of every plan, they can provide service to more companies. Previously, most representatives serviced the employees of a half-dozen companies. Now, on average, each representative handles 14 or 15 retirement plans.

DEFINING VALUE

The customer service center, costing $15.4 million over six years, helped SSGA reduce transaction processing times from as long as six weeks to less than 24 hours. Customer service representatives are now more productive; they service customers better and make fewer mistakes. As a result, customer satisfaction went up, which contributed to the company moving from 10th in its industry to third. State Street estimates that returns from 1994 to 1998 will total $21.5 million. That figure is a result of increased revenue, cost reductions and increased productivity.

ANATOMY OF THE SYSTEM

HARDWARE: The customer service center consists of three applications: a voice response unit, customer service support workstations for phone representatives and an Internet service system. All three operate in a Unix environment with IBM RS/6000 and Digital Equipment Corp. Alpha servers.

The primary record keeping system, which is the transaction processor that acts as the core of the environment, is a Cobol/VSAM system running in an IBM CMOS environment with a Customer Information Control System (CICS) front end.

SOFTWARE: An Oracle Corp. database feeds the three applications. The voice response unit applications run on IBM's Direct Talk product, using an AT&T G3r switch and associated software for sophisticated call routing and messaging. Direct Talk also interfaces with IBM's Call Path to identify the client 800 number for the call and then passes that information to the customer service workstation. Direct Talk and Call Path run in a Unix environment. The customer service workstation is a Windows 3.1 application written in Borland's C++ that utilizes a Windows Help system.

NETWORK: The applications communicate via TCP/IP with the Oracle database.

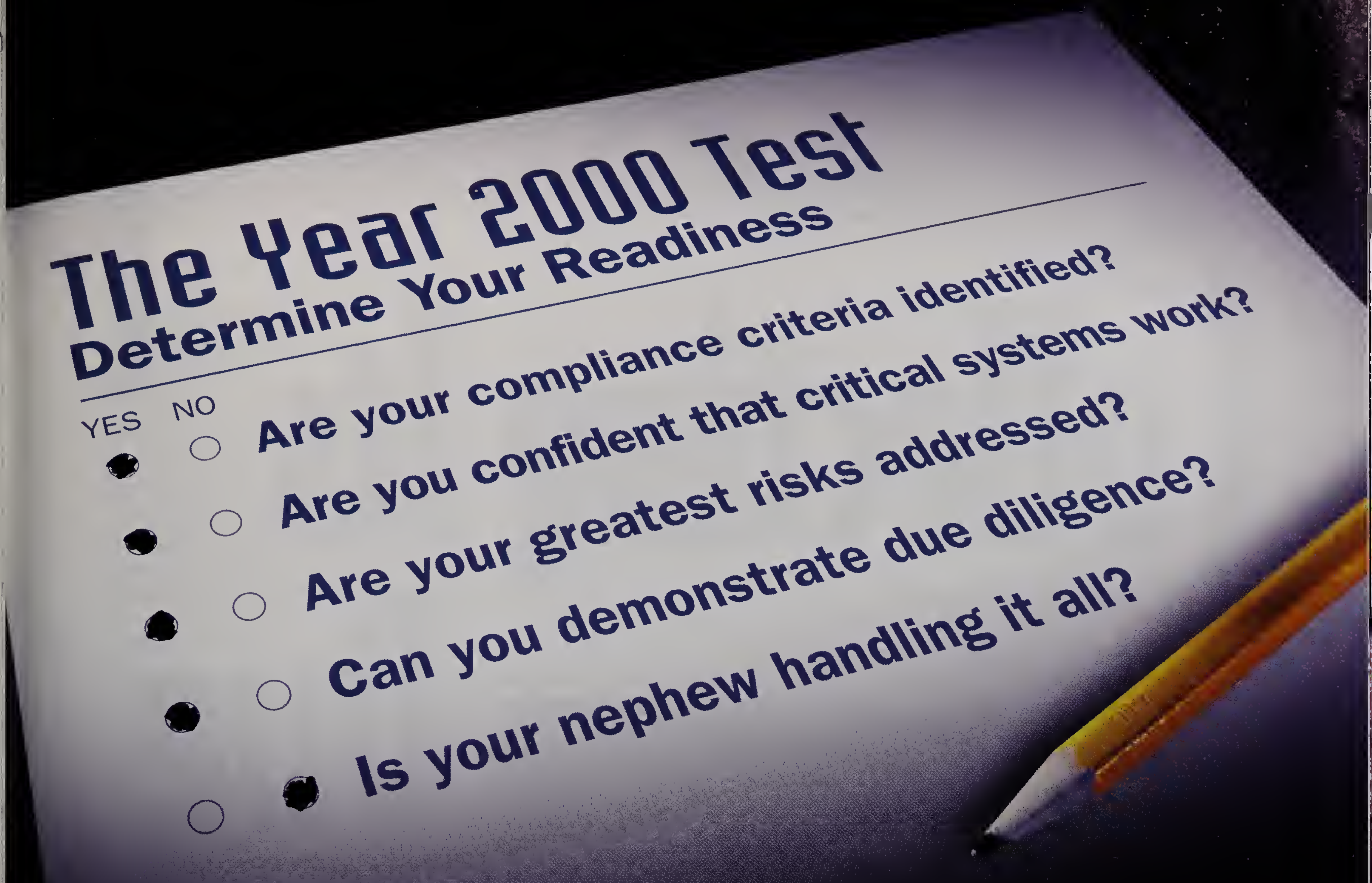
The system's voice response unit is the workhorse for SSGA. The voice response unit (VRU) system handles about 85 percent of calls and enables callers to complete transactions without a customer service rep. The fact that such a large percentage of callers feel comfortable interacting with an automated system is "a strong vote of confidence for the ease of use of the technology," Sexton says. The VRU has also made it easier for SSGA to handle the 12 million calls it receives annually.

The project, launched in July 1993, challenged SSGA's IS department with an ambitious time frame and unfamiliar technology. SSGA promised several major clients that it would complete the system by the following February. Adding to the complexity, the system was IS's first crack at setting up a distributed client/server environment. Users' input during development was essential because ultimately the representatives' performances would reflect the system's success or failure.

A half-dozen customer service reps participated in the design of a prototype and another 20 contributed to subsequent iterations. IS videotaped customer service reps using the system and studied the results as intently as a football coach studies game films. IS also listened carefully to users' suggestions. "This is truly a case where users feel it is their product, their tool," says John A. Fiore, principal and CIO. "They own it. I'm thrilled about that. It is our job to give them the tools to do their job better so that they don't say, 'Here's something that Systems built, and we have to use it.'"

Investing millions in the customer service system now seems like a no-brainer, but many companies underestimated the impact that faster customer service would have on the industry and failed to take action. "The companies that didn't make the changes to provide this new customer service model are out of the business now," says Phalen. By accurately sensing the movement of the market, responding quickly to it and building a system that gives users and customers exactly what they need, SSGA grew to be an industry leader while leaving others in the dust.

Staff Writer Peter Fabris can be reached at pfabris@cio.com.



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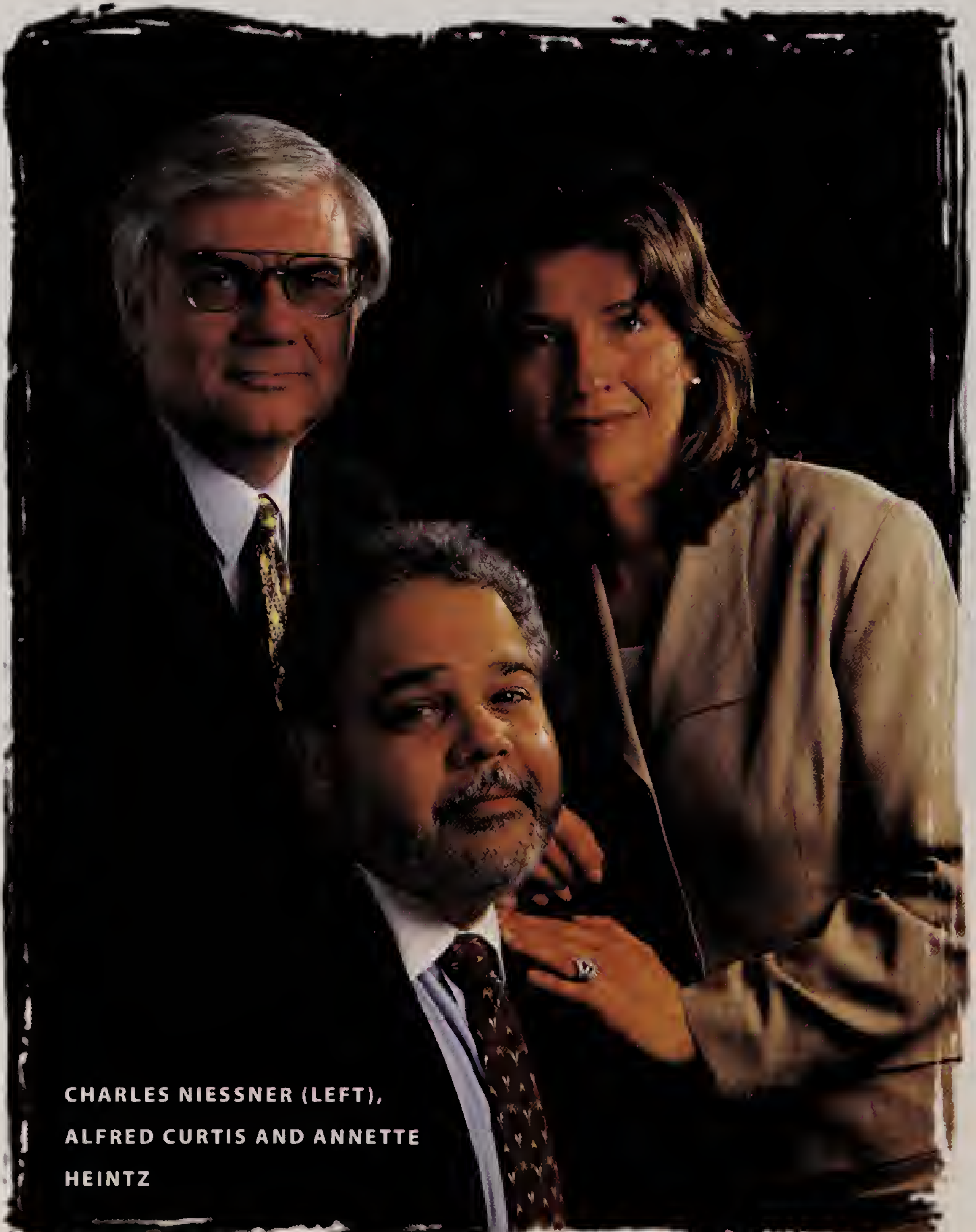

CHARLES NIESSNER (LEFT), ALFRED CURTIS AND ANNETTE HEINTZ

The Big Apple's Department of Finance makes the bite of municipal licensing fees less painful

BY RUTH GREENBERG

IF YOU'VE RIDDEN THE NEW YORK CITY subway recently, you've probably been dazzled by the shiny new cars. The city has cleaned up the way its financial information travels, too. New York City's Department of Finance and its Department of Information Technology and Telecommunications (colloquially known as DoIT) have collaborated on a digital infrastructure for the city's complicated system of revenue collection.

Developed by the Department of Finance's Systems Architect Alfred Curtis, the City Agencies' Management Information System (CAMIS) has become the city's best advocate, diplomat and public relations machine. It helps business owners pay licensing fees and fines on time, lets city workers quickly record fine payments and even simplifies law enforcement agents' hunt for scofflaws.

EVA judges were impressed by the way CAMIS has allowed New York City to maximize revenues and untangle its massive bureaucracy at the same time. At the Department of Consumer Affairs (DCA), which collects fines and fees from practically every business in the city, employees depend on CAMIS to keep track of payments for the hundreds of New Yorkers who visit the office every day. The department once held boxes upon boxes of uncashed checks—all lost revenue for the city—because workers couldn't post payments fast enough to keep up. Now it takes less than a minute to post a check and record its receipt, and it's easy for employees to do—so easy that the database captured the attention of other departments within the city. "When other people saw what a good resource it was, they wanted to use it," says Charles Niessner, assistant commissioner for management information systems at the Department of Finance.

A Database as Big as New York

CAMIS is made up of a large database, a data communications network and PCs and terminals all over the city. "CAMIS stores 4 million records, with information on 500,000 city businesses; the database includes businesses that have been inspected, issued a violation for some reason, previously held or still hold a license or are awaiting approval of a license," says Niessner.

CAMIS serves all the businesses in the city, which in turn cater to 7 million people, squeezed into five boroughs covering approximately 300 square miles. Without an organized system, that would be enough economic activity to cause gridlock in the flow of information. By next fall, CAMIS will also be used by the Taxi and Limousine Commission to store information on the city's 50,000 licensed taxis and limousines and their 80,000 drivers.

Employees from all parts of the city's infrastructure have access to the database. Health inspectors use it to plan their restaurant visits, and municipal workers post every payment of fines and licensing fees in the system. But CAMIS also keeps all the city departments in communication with one another. When a change in the records is typed in at the licensing office in lower Manhattan, every city employee from Queens to The Bronx can see it.

"You can search for information using any scrap of data," Curtis says. Just punch in any distinguishing characteristic of a business—its name or the owner's name, a number relating to a violation, complaint or business license, or even something as vague as its neighborhood—and you'll get the history of its dealings with the city. Niessner puts it this way: "If you, as a business owner, tell us your address, we can tell you how much you owe in about a second."

A business's status isn't available only to city government officials, either. The moment anyone applies for a license or permit, or receives a citation or a complaint, that information becomes available to any interested party. The city's integrated voice response system, accessible through a touch-tone telephone, reveals how much debt a business has, the status of its license and when all of its payments were received and posted. "Right now, CAMIS stores complaints; soon we may make those records accessible to the public through self-service kiosks or the Internet," says Annette Heintz, assistant commissioner for consolidation at the Department of Finance.

The Downtown Runaround

Before the arrival of CAMIS in 1995, a business owner who owed a fine would have to go back and forth between different geographical locations before getting approval for a license. Now it's one-stop shopping for owners, a convenience that can't help but keep city government workers—and the businesses themselves—satisfied. That's important, says Niessner, because CAMIS really benefits what he calls "the ultimate customer"—the citizen who does licensing business with the city.

The system was first used to consolidate $390 million worth of parking tickets. Now, workers put CAMIS through its paces by using it for the real-time processing of almost every business-to-city transaction. As soon as a check comes to a cashier's window or through the mail, workers record its receipt in CAMIS. Previously, payments were sent to a bank for nighttime data entry. The bank then created a tape that was used to update the host system. This whole process could take as long as a week.

Because of those point-of-sale updates, CAMIS can quickly provide payment information for any of the city agencies.

JUDGE'S PERSPECTIVE

> "You don't always need more money to make tremendous progress with systems."
>
> –**ALANA WARD-ROBINSON**, *CIO & vice president, Sara Lee Hosiery*

PHOTO BY EDWARD SANTALONE

For example, if city inspectors decide to close down a business for neglecting to pay its legal judgment debts, they can check CAMIS for the latest payment information before they leave. If the business has paid its debt anytime before the moment the agents arrive to padlock the doors, CAMIS will reflect that information. The result: The system saves the business from shutdown and the agents a costly trip. And at $250 a pop for a Department of Health inspection, for example, the city can save a lot of money by avoiding unnecessary inspections.

Real-time payment updates also let the Department of Finance find out if a business owes the city any money because of a violation. If so, the business will be denied a license. "Sending a letter usually produces the money quickly," according to Heintz. "Keeping on top of that information results in higher collections and more city revenue," she adds.

Once other city departments noticed CAMIS's success, they wanted to sign on. The first of these, the city's Department of Health, started to use CAMIS in 1996. Workers there need to access information on thousands of restaurants, send out notices when payments, fines or fees are due and help customers, city officials and business owners, get the dirt—literally—on the city's 20,000 licensed eating and drinking establishments.

The Department of Health kept paper payment ledgers until 1996, but transferring those records to electronic files and keeping them on each employee's desktop has helped maintain cleaner data, since changes can be made by anyone who has access to CAMIS. That way, a fee can be charged, the balance paid and the transaction recorded—simultaneously.

Agencies with extensive databases, like the Department of Health and the Department of Consumer Affairs, are the best examples of CAMIS's users, but other city agencies benefit from the system, too. It has proved a good resource for everyone from the police department, the District Attorney's office, the State Inspector General and the Better Business Bureau to the investigatory arms of the New York City Council, the New York City School District and the New York City Department of Sanitation.

ANATOMY OF THE SYSTEM

HARDWARE: City employees access CAMIS through 30,000 terminals and PCs; the CAMIS system runs on an IBM Corp. System 390 9672 processor with the MVS operating system and Customer Information Control System (CICS).

SOFTWARE: CAMIS was developed using Software AG's Adabas DBMS, Natural programming language and Predict data dictionary tool.

NETWORK: All of the systems are connected to Citynet, the city's data communications network.

DEFINING VALUE

The CAMIS database brings a three-way win to New Yorkers. Its half-million businesses get one-stop shopping convenience in dealing with city licenses and fines, instead of having to visit one agency to pay a fine and another to purchase a license. Its employees get up-to-the-minute accuracy, preventing them from making unnecessary inspections, which can cost $250 a pop. The taxpayers benefit, too—the city collected some $3.7 million more in fines between 1994 and 1997, money that would have been lost under its old paper-based maze.

The City Cleans Up

CAMIS's primary goal was to provide the city with a technology to improve productivity and a compatible database among agencies with a similar customer base. One of the secondary goals was to develop a cost-effective mechanism to increase the collection of outstanding money owed to the city. Computerizing the fine collection process has allowed the city to automatically send out tens of thousands of collection notices, with no additional staff hours or costs. According to Heintz, the city collected some $3.7 million in fines between 1994 and 1997 as a direct result of the CAMIS system that would have been lost under the old paper-based maze.

Under Mayor Rudolph Giuliani, New York's city agencies feel the pressure to increase their efficiency. The mayor's determination to simplify city government, balanced against the bureaucratic urge to stick with policy, put DoIT on the spot. As Niessner says, "CAMIS helped two of the city's largest and most profitable agencies consolidate their records, employees and office space. City government cross-trained employees to do all sorts of licensing procedures. A cashier who used to collect fees for the Department of Health might now collect fees and fines from a Department of Consumer Affairs customer. That makes it easier for people to interact with the government, which is the goal of all this improvement."

There are 30,000 terminals in the Naked City, and they can all be connected to CAMIS. About 500 people use the application routinely. CAMIS can hold 32 million records per file—about eight times its current volume—so it's capable of dishing up data as fast as city agencies can generate it. When someone submits a query to the database, response time is almost immediate. If you were to divide IT into degrees of difficulty, organizing the city of New York would rank high on the scale, just on the basis of the city's size. As CAMIS expands and becomes more citywide and less agency-specific, city employees will be able to manage the city's affairs the way good businesses manage theirs: accurately, fairly and securely.

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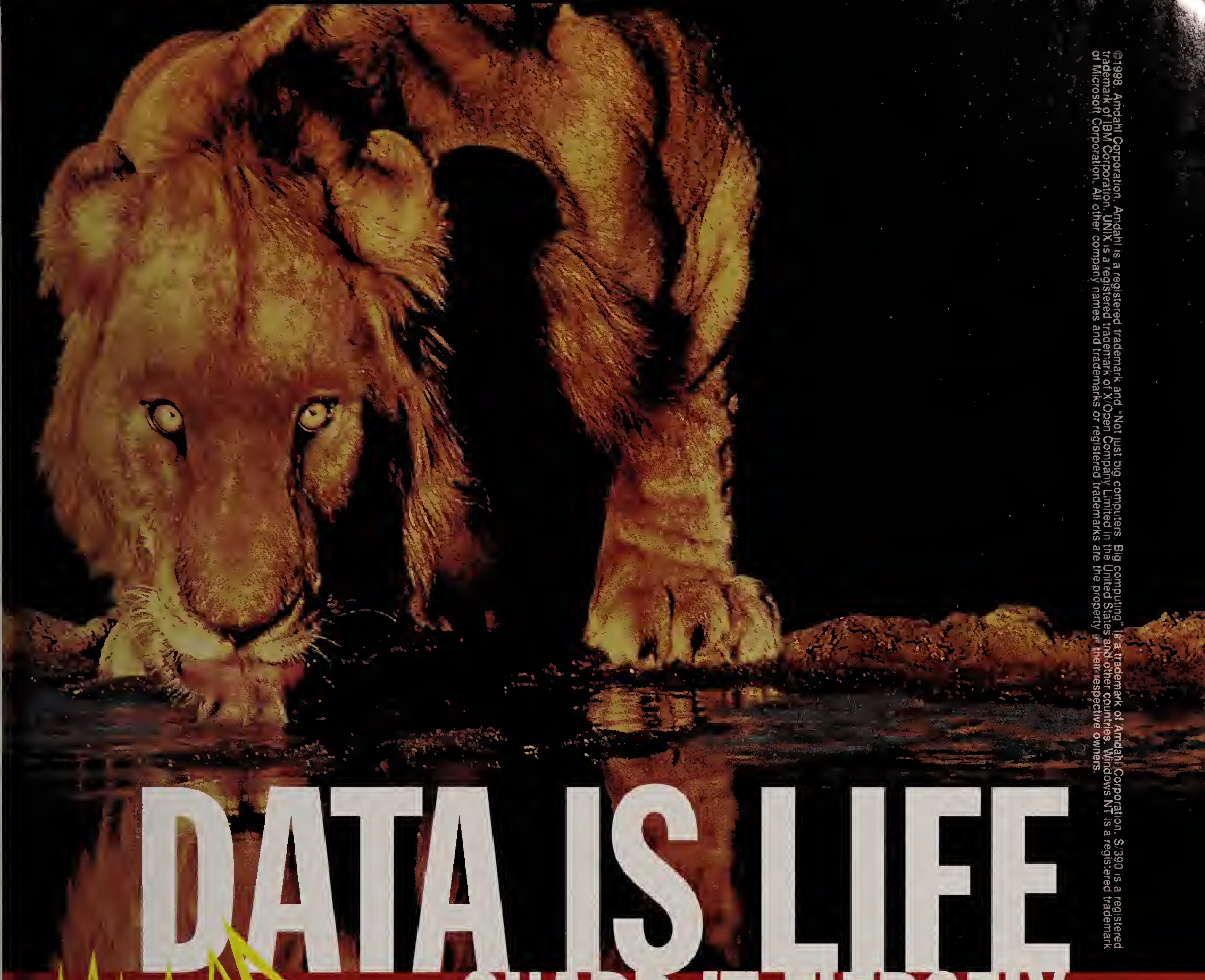

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STRATEGIC ADVANTAGE THROUGH INTELLIGENT NETWORKING

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AT&T SOLUTIONS

RICK ROSCITT INSIGHTS

"AT&T SOLUTIONS DEFINES NETWORKING AS A WAY OF DOING BUSINESS THAT HELPS CLIENTS ACHIEVE STRATEGIC ADVANTAGE"

Rick Roscitt
President and CEO,
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Rick Roscitt

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ESTABLISHED: February 14, 1995

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NUMBER OF CLIENTS SERVED: More than 200

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Networking is more than just the cables and devices that link users and computing resources at any particular moment. It encompasses the entire spectrum of activities, disciplines, skills and objectives that are required to achieve and maintain competitive advantages in a communications-intensive world. Networking doesn't try to cope with change — it embraces it and creates value along the way.

PROOF OF CONCEPT

Networking isn't just a concept. It's a way of doing business that has already paid tremendous dividends to AT&T Solutions' clients. Global enterprise players such as MasterCard International, McDermott International, PR Newswire and Lufthansa Systems have validated AT&T Solutions' networking-centric philosophy by choosing us as their business and technology partner. By giving these companies the ability to plan strategically, implement rapidly and manage effectively, AT&T Solutions has transformed networking from a resource drain to a competitive gain. And we've done all this while insulating them from the vagaries of staffing, training, contracting and wrangling with multiple vendors.

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Arthur Ahrens, Senior VP of Operations Services, MasterCard International

THE CHALLENGE:
14 MILLION LINES, NO WAITING

According to the old saying, "If it ain't broke, don't fix it." But that attitude doesn't cut it when it's your goal to help re-shape the future of money.

That's why MasterCard International enlisted the aid of AT&T Solutions to build a new network capable of supporting a wide range of financial and transaction services worldwide — including those that haven't even been conceived of yet.

The scope of such a transformation would be staggering to any other service provider: MasterCard supports 23,000 financial institutions and 325,000 ATMs in 87 countries, processing over six billion transactions in 1996.

To make matters more interesting, MasterCard's existing network boasted uptime of over 99.99%, much to the delight of cardholders and member banks alike. In fact, the average transaction — from point-of-purchase to the retailer's bank to the cardholders bank and back again — takes less than two seconds.

"It was a hard sell when I went to the banks and told them what we were going to do," says Arthur Ahrens, Senior VP of Operations Services at MasterCard International. "They were very happy with things as they were."

But complacency doesn't buy you leadership. And MasterCard's management knew that to capitalize on new markets and emerging opportunities in electronic commerce, a more flexible and extensible infrastructure would be essential.

"We had a highly redundant and reliable X.25 network, which featured a unique configuration of fully meshed circuit-switched leased lines surrounding our packet-switched backbone," explains Ahrens. "In addition to being very sophisticated, it was also a capital-intensive operation that couldn't support multiple services efficiently."

Moving to a managed Internet Protocol (IP)-based solution from AT&T Solutions accomplished several very important objectives. First of all, it allowed MasterCard to move from a capital-intensive networking model to a services-based one. "MasterCard International is looking to maximize the value of its financial resources," explains Ahrens. "So, from a business perspective, we don't need to create capital write-offs."

Piggybacking on AT&T's Frame-Relay-and-ATM infrastructure provides MasterCard with several other major benefits as well: distance-insensitive pricing, the immediate availability of new technologies as they're deployed on AT&T's network, and — that most wonderful of IT luxuries — bandwidth-on-demand.

"Every year we would incur significant costs to upgrade our network in order to handle the additional load that always occurs during the Thanksgiving-to-Christmas shopping season," says Ahrens. "Then, in January, the volume would drop off by about 42% and we'd be sitting there with expensive, under-utilized capacity."

In the process of transitioning MasterCard to this highly flexible and cost-efficient mode of global networking, AT&T Solutions has shown off its command of logistics as well. "It's quite a daunting task to incrementally map our very complex, redundant leased-line infrastructure to the new Virtual Private Network — as well as to support applications over the legacy network, the new network and/or a combination of the two simultaneously," observes Ahrens. "But AT&T has pulled it off without a hitch."

That seamless transition is critical for MasterCard's non-stop stream of consumer transactions. After all, how many IT departments have customers who can directly observe their network's latency day in and day out? "The last thing you want is for a merchant or one of their customers to be frustrated by a communications delay," says Ahrens. "They'll just pull out another card."

But, when it comes to networking, there's more at stake for MasterCard than just maintaining consumer card marketshare. The company's sights are set on nothing less than a leadership position in the multi-trillion-dollar marketspace of electronic commerce, on-line shopping and smart cards. "An open, well-managed, instantly extensible networking platform is vital for MasterCard to take its rightful place in the brave new world of digital money," says Ahrens. "AT&T Solutions stands out as the only business partner qualified to support such a difficult and mission-critical undertaking."

AT A GLANCE

MasterCard

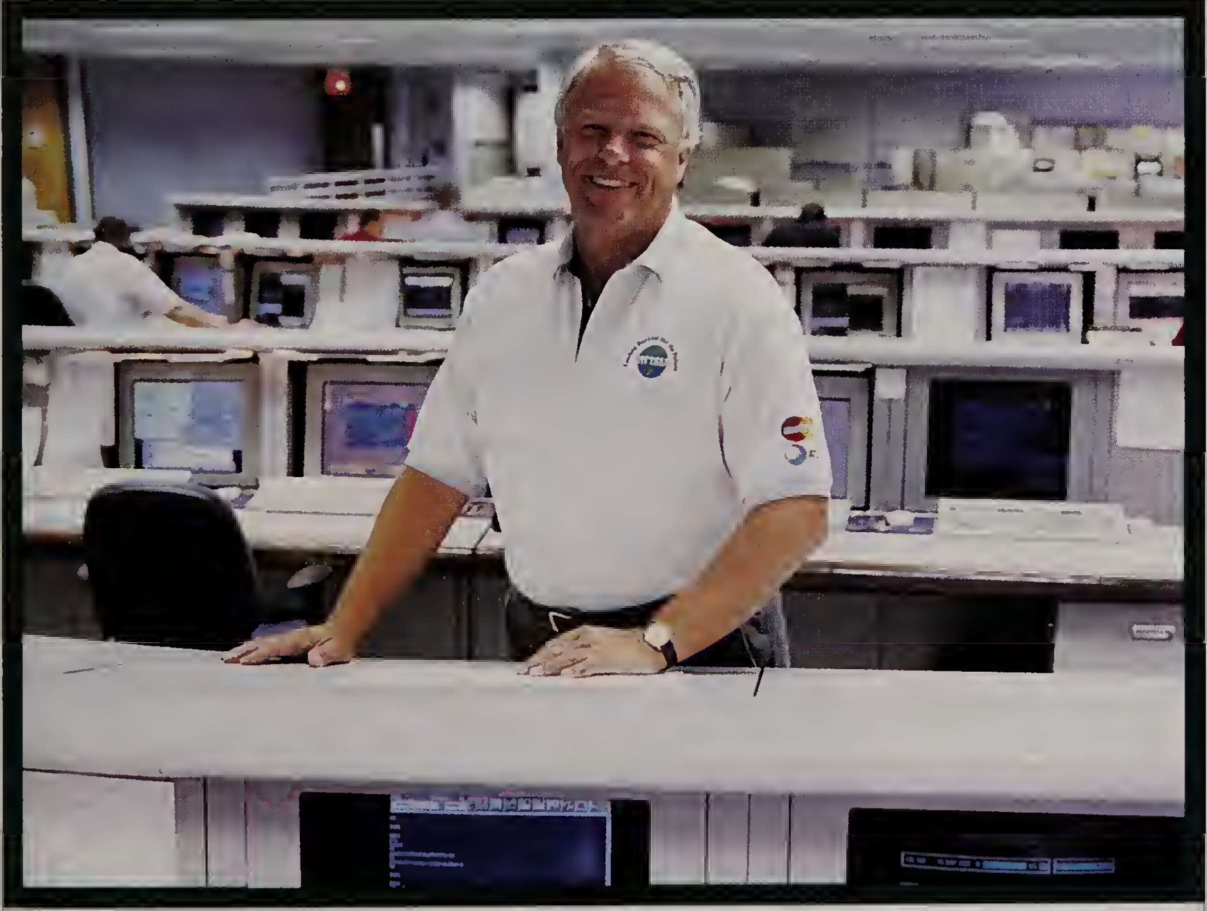
COMPANY: MasterCard International — Purchase, N.Y.

BUSINESS: Global Payments Services

REVENUE: Over $945 million

TRANSACTION VOLUME: Over $550 billion

NUMBER OF EMPLOYEES: 2,300 worldwide



Arthur Ahrens, Senior VP of Operations Services, MasterCard International

SCALABILITY, RELIABILITY AND EFFICIENCY

The art of good leadership is knowing how to delegate. That means entrusting the right task to the right party. When it comes to network management, companies like PR Newswire and Lufthansa Systems understand the value of relationships.

THEIR CHOICE: AT&T MANAGED NETWORK SOLUTIONS (MNS)

AT&T MNS is the out-tasking arm of AT&T Solutions that offers custom and prepackaged network solutions to cover a broad spectrum of professional services to manage both the logical and physical elements of a client's network.

Serving a global client base, MNS delivers its services through eight interconnected network management hubs worldwide.

"What differentiates MNS in the industry is the quality, scope and breadth of functions and services we offer clients, worldwide," said Ed Nalbandian, Services Vice President at MNS.

The corporation's commitment to managed networks is unsurpassed in the industry and AT&T is continually investing in its networking platform. "MNS clients are supported by more than 1,300 professionals dedicated solely to managing their networks," added Nalbandian.

MNS supports hundreds of corporations by providing networking technical and management know-how that is typically difficult to find in today's competitive IT marketplace. Their innovative menu-based approach to out-tasking combines a set of network transport and equipment elements with a set of professional services. MNS is vendor independent, providing services for multiple vendors' equipment. These professional services span architecture, design, implementation, operations, lifecycle management, and are also backed by industry leading performance reporting capabilities.

What's more, clients can select the elements they want managed and the services they want provided, within a wide range of networking environments. Corporations who partner with MNS find it easy to integrate new technology into their networks while reaping significant performance benefits.

PR NEWSWIRE-NEWS TRAVELS FAST

Businesses like PR Newswire know all about being fast on their feet. Whether delivering electronic information for their clients around the corner or around the globe, timing is everything.

That's why the 43 year-old news organization turned to AT&T's MNS: to provide compre-

AT A GLANCE

PR NEWSWIRE

COMPANY: PR Newswire - Jersey City, NJ

BUSINESS: Electronic Information Delivery

REVENUE: $70 million

NUMBER OF EMPLOYEES: 450 worldwide

hensive management and support to the most integral part of PR Newswire's business operation, its enterprise network.

"Turning to AT&T'S MNS was a no-brainer because moving to a Frame Relay network was a new paradigm for us, one that was, technically, out of our league," said William Bricker, Manager of Network Operations at PR Newswire.

With the network at the heart of a growing number of businesses, PR Newswire understands the importance of retaining a professional network management team that offers flexible end-to-end services backed by a tradition of quality and reliability.

PR Newswire signed a three-year contract with AT&T's MNS to plan, design, implement and maintain a 7x24 Frame Relay network that interconnects 20 bureaus nationwide. The electronic information provider relies on the WAN for complete business-to-business communications.

Managed Network Solutions helps the news organization do more than just meet its current business goals. Other benefits include cost savings and on-going technical expertise and support that enable PR Newswire to pursue new business opportunities.

"TURNING TO AT&T'S MNS WAS A NO-BRAINER ..."

William Bricker, Manager of Network Operations, PR Newswire

LUFTHANSA SYSTEMS-NETWORKING TAKES OFF

When the independent IT service provider for Germany's largest passenger airline carrier, Lufthansa Systems (USA) chose to migrate its North American enterprise network from a digital private line infrastructure to a routed Frame Relay solution, corporate decision makers selected MNS. "AT&T offers the most reliable and technically comprehensive solution available," said Knut Eirich, Communication and Field Service Manager at Lufthansa Systems (USA).

The firm's corporate strategy was clear: provide over 500 employees at 110 North American sales and airport office locations a robust WAN for enterprise e-mail, Internet access and central server and mainframe access.

The cost to undertake the router implementation and management in-house, however, was prohibitive and the potential to disrupt business operations was one the company couldn't afford.

Today, Managed Network Solutions has complete management oversight of the Frame Relay network it installed and configured for Lufthansa's North American operation this year.

"AT&T OFFERS THE MOST RELIABLE AND TECHNICALLY COMPREHENSIVE SOLUTION AVAILABLE."

Knut Eirich, Communication and Field Service Manager, Lufthansa Systems (USA)

Not only was MNS able to get the IT service provider's WAN up and running, but out-tasking the project to MNS is projected to save the company at least 30% in yearly router management costs alone.

Like PR Newswire, Lufthansa Systems has a network it can trust, a business partner it can rely on and a sophisticated WAN infrastructure to leverage for new business.

MNS provides its clients the option of moving towards a more extensive level of network management support at anytime. If a client decides to outsource total network

Continued on Page 11

AT A GLANCE

Lufthansa Systems

COMPANY: Lufthansa Systems GmbH - East Meadow, NY

BUSINESS: Worldwide IT Service Provider

REVENUE: $340 million

NUMBER OF EMPLOYEES: 1,200 worldwide

AT&T SOLUTIONS' GLOBAL CLIENT SUPPORT CENTER

AT THE HELM OF GLOBAL NETWORKING SUPPORT

Savvy corporations understand that effective business partnerships translate into strategic and tactical edges in the marketplace. With the AT&T Solutions Outsourcing Practice as a strategic ally in global networking, each client's entire networking platform is supported by the most sophisticated management resource of its kind: The AT&T Solutions Global Client Support Center (GCSC).

A state-of-the art facility, the GCSC has the people, the technology and the processes to become a virtual extension of the client's enterprise. What's more, the GCSC keeps corporations connected to clients, customers, suppliers and employees, worldwide. The hub of the GCSC is located in Raleigh-Durham, North Carolina with extensions in the United Kingdom, Amsterdam and Singapore.

"AT&T's vision is to help its clients maximize their use of technology by unleashing value with transformation, technical professionals and the GCSC as an extension of our client's team," said Mary Ellen Caro, Managing Partner, AT&T Solutions.

ONE-SIZE FITS ONE

Since every corporate network strategy and architecture is unique, the GCSC assembles a designated team to meet the business objectives and management requirements of each client's networking platform. "We build and execute integrated processes with minimal disruption as we transition our clients to advanced networking platforms," said Caro.

Using sophisticated technology, each client's team always has a complete view of the network infrastructure and the ability to track the status and performance of all network resources. Network visibility spans from individual desktops to the global enterprise.

The GCSC provides support 24 hours a day, 365 days a year for networking management functions such as fault management, configuration management, performance management, security management, maintenance and repair and vendor/carrier management.

TRAINING NEVER ENDS

The Global Client Support Center's recipe for success: its people. Each AT&T Solutions associate enters the GCSC as a networking professional with unmatched academic credentials and related work experience. Then, these seasoned professionals advance their skills with on-going education and, ultimately, certification in at least one or more technical specialties: Network Management, Business Management or Help Management.

That's not all. The GCSC staff has unlimited access to AT&T Laboratories, a world-class technology "think tank."

"AT&T's 125 year-old heritage of expertise and experience is brought to bear in the GCSC," said Caro.

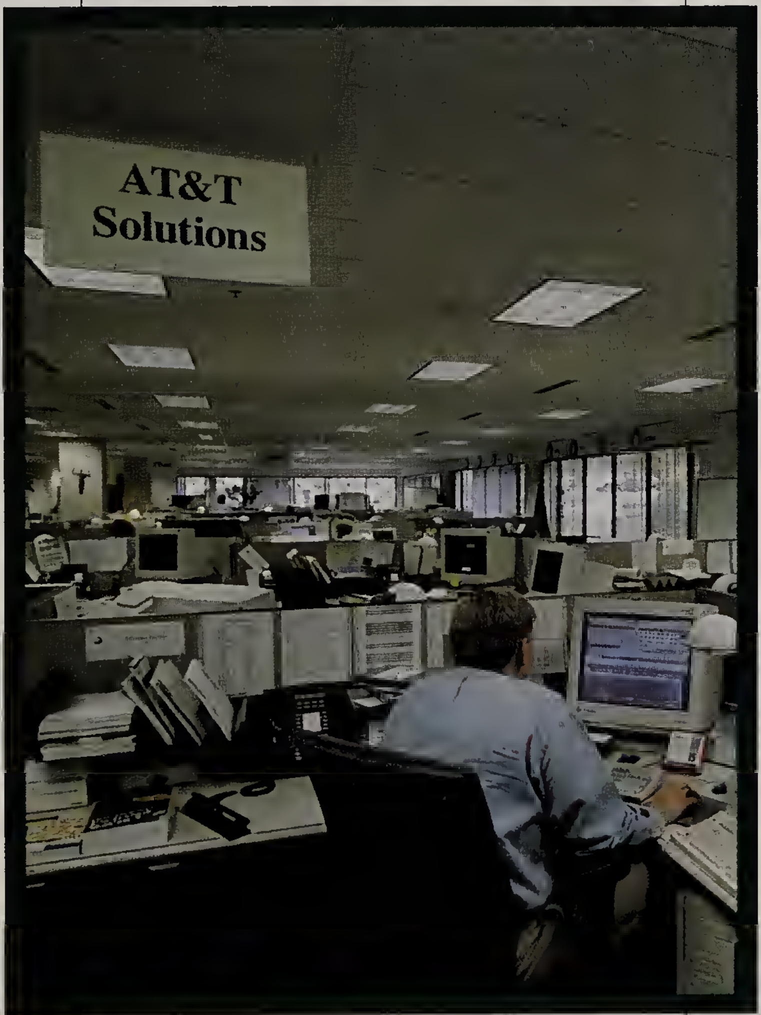
LEADING-EDGE TECHNOLOGY AND TOOLS

All managed services are delivered via AT&T's Global Enterprise Management System (GEMS), a custom-developed platform designed to support a wide variety of client platforms and technologies, seamlessly managing networks that incorporate equipment and services from multiple vendors.

The GEMS provides a real-time window into the client's network, providing detailed maps of network assets, status of work in progress, and data regarding performance that is used for fault prevention.

Sophisticated tools and technology allow the GCSC to be both predictive and proactive. The network technology platform continually monitors clients' networks for problems or difficulties while simultaneously collecting and reporting historic fault data and long-term trends.

This valuable information enables each client's GCSC team to suggest network improvements and additional services to vastly improve network performance. Behind the scenes, the GCSC uses reporting tools and an automated work order system to ensure clients that their networks are maintained, administered and managed quickly and efficiently.



AT A GLANCE GCSC

ESTABLISHED: September 1, 1995

NUMBER OF EMPLOYEES: 300+ worldwide

NUMBER OF CLIENTS SERVED: Over 200

NODES UNDER MANAGEMENT: Over 20,000

HARDWARE: HP Servers (E, G, K class), Cisco & Bay Networks Routers, HP UNIX/NT Workstations

SOFTWARE: GEMS (Global Enterprise Management System) — proprietary integrated platform

AT&T SOLUTIONS

People, tools and integrated client processes are critical components of the GCSC that ensure responsiveness and reliability from the mission critical networks under management. Most importantly, the advantages of the GCSC are clear to AT&T Solutions' clients: global reach and responsive network management built on a tradition of technical excellence.

CLIENT SOLUTION: MCDERMOTT INTERNATIONAL

"WE VIEW OUR RELATIONSHIP WITH AT&T SOLUTIONS AS A COMPLETE SUCCESS."

John Ruckert, Vice President of Information Technology, McDermott International

THE CHALLENGE: POWERING UP FOR THE FUTURE

McDermott International supplies the world with power generation systems and marine construction services leveraging its 50+ locations and 24,000 employees worldwide. The $3.2 billion corporation primarily serves oil and gas companies, electrical utilities and the U.S. Navy on a global basis. McDermott relies on its international network for intra-business communications and business-to-business communications with clients, vendors, suppliers and partners involving all critical enterprise applications.

But, prior to 1996, the company's network was passé. It satisfied the company's 1980's mainframe style of computing but was unresponsive to the needs of a 1990's client/server environment.

A major network upgrade was in order. Migration to a sophisticated, robust, bandwidth-on-demand enterprise network infrastructure was critical for McDermott to achieve its corporate vision of being a more competitive player, both in the immediate term and into the 21st century.

"It was in the corporation's

John Ruckert, Vice President of Information Technology, McDermott International best interest to outsource our network infrastructure to an organization who made network management and services its core business," said John Ruckert, Vice President of Information Technology at McDermott International.

McDermott's direction: focus on its core competencies, expand the business and reduce operating costs by outsourcing non-core processes.

THE SOLUTION

In a win over major competitors, AT&T Solutions was awarded a five-year, $30 million contract to manage McDermott's voice, data and video network.

"AT&T Solutions offered the best cost proposal and professional and technical expertise to manage our network, do the Frame Relay conversion and provide on-going network management and support," said Ruckert.

AT&T Solutions' state-of-the-art Global Client Support Center (GCSC), located in Raleigh-Durham, N.C. enhanced the deal. A visit by McDermott corporate decision-makers to the nerve center of AT&T Solutions assured them that they made the right choice.

The GCSC is a virtual networking management center that brings together thousands of technical professionals and the most sophisticated integrated tool sets available.

In record time, AT&T Solutions proved its mettle and more. AT&T Solutions met McDermott's contracted service levels without fail, provided 20% cost improvement on voice/data WAN management and installed new technology with no significant capital outlay from the client.

Additional benefits are clear as well: in one case AT&T Solutions coordinated the technical resources of three external vendors along with its own AT&T Labs technicians to resolve an intermittent SNA timing problem affecting McDermott's frame relay network.

"The final resolution was a software fix in an external vendor's equipment – which would have been essentially impossible to isolate without AT&T Solutions' involvement," said Glen Runyon, Director of Telecommunications at McDermott International.

Today, AT&T Solutions and McDermott are allies in their commitment to McDermott's excellence and growth. Being flexible and responsive continues to distinguish the AT&T Solutions team.

AT A GLANCE

McDERMOTT M

COMPANY: McDermott International — New Orleans, Louisiana

BUSINESS: Power Generation Systems and Marine Construction Services

REVENUE: $3.2 billion

NUMBER OF EMPLOYEES: 24,000 worldwide

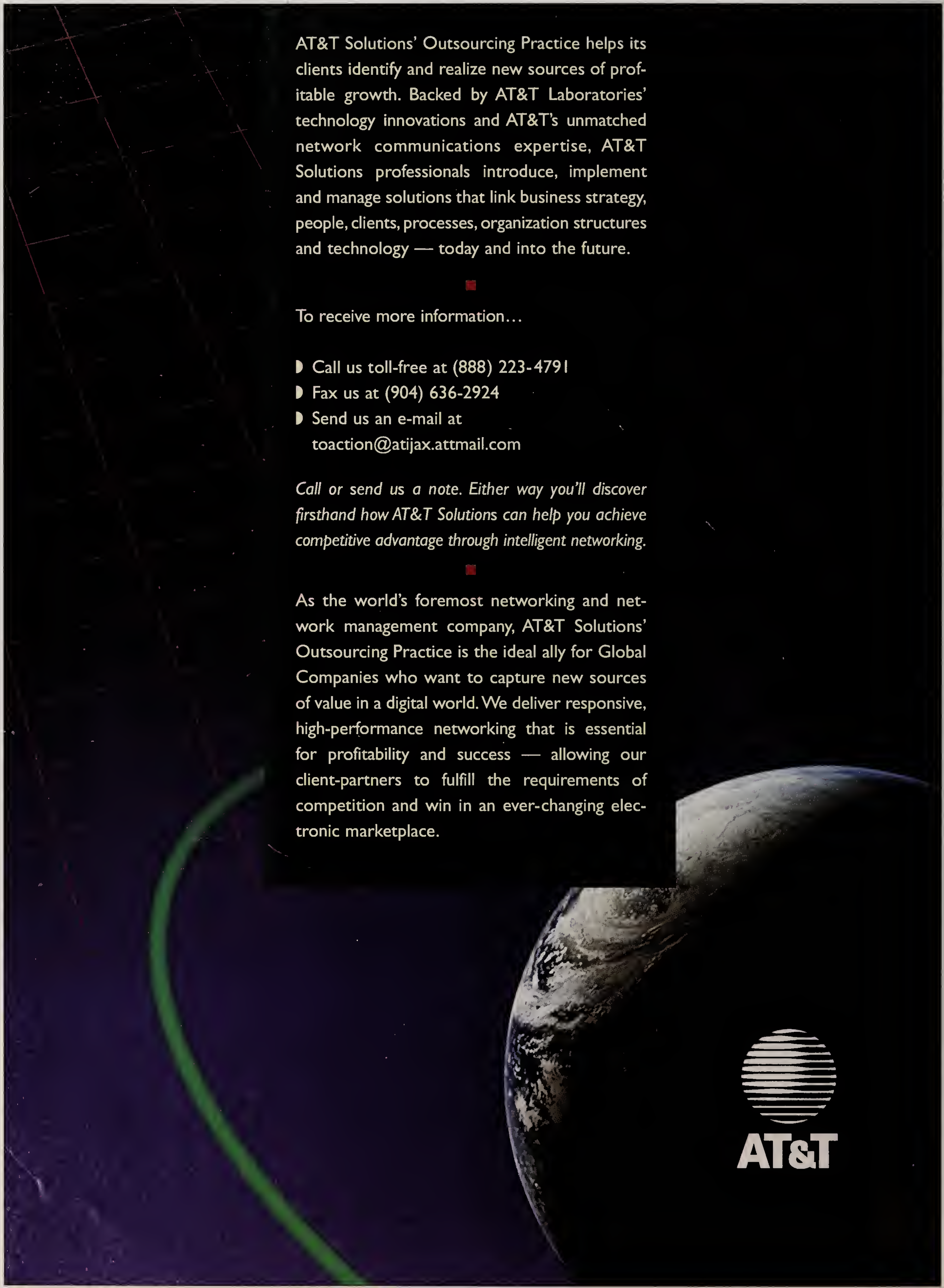
With its global WAN in the hands of a single provider, McDermott can focus on projects that might otherwise be neglected, thereby enriching its core business competencies.

"We view our relationship with AT&T Solutions as a complete success," said Ruckert.

AT&T MANAGED NETWORK SOLUTIONS – *Continued from Page 7*

management, AT&T Solutions' complete networking services can be introduced. And the transition from one to another can be made smoothly.

With an infinitely variable set of options and scalability, AT&T Managed Network Solutions provides businesses with comprehensive end-to-end managed network capabilities.



AT&T Solutions' Outsourcing Practice helps its clients identify and realize new sources of profitable growth. Backed by AT&T Laboratories' technology innovations and AT&T's unmatched network communications expertise, AT&T Solutions professionals introduce, implement and manage solutions that link business strategy, people, clients, processes, organization structures and technology — today and into the future.

■

To receive more information…

- Call us toll-free at (888) 223-4791
- Fax us at (904) 636-2924
- Send us an e-mail at toaction@atijax.attmail.com

Call or send us a note. Either way you'll discover firsthand how AT&T Solutions can help you achieve competitive advantage through intelligent networking.

■

As the world's foremost networking and network management company, AT&T Solutions' Outsourcing Practice is the ideal ally for Global Companies who want to capture new sources of value in a digital world. We deliver responsive, high-performance networking that is essential for profitability and success — allowing our client-partners to fulfill the requirements of competition and win in an ever-changing electronic marketplace.

AT&T

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